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Arkansas Business and Economic Review

B.A. NUGENT
Chancellor, University of Arkansas, Fayetteville
JOHN P. OWEN
Dean, College of Business Administration
PHILLIP H. TAYLOR
Director, Bureau of Business and Economic Research
JOSEPH A. ZIEGLER
Senior Research Associate

HARRY FRENCH
Associate Economist
MARY S. HIRSCH
Instructor/Systems Analyst
EILEEN KINSEY
Research Assistant
LINDEL TOWNSLEY, JR.
Research Assistant

WILLIAM FLYNN
Office Manager
SHERRYL E. LAUBACH
Assistant to Editor
SONJA LACKEY
Bureau Secretary
JACQUE HOLLOWAY
Office Assistant

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Fayetteville, Arkansas 72701

INDIVIDUAL RETIREMENT ACCOUNTS: A DISCUSSION

Joseph W. Wilson
Professor of Finance and Industry
California State University, Fresno

INTRODUCTION

On August 13, 1981, President Reagan signed into law the Economic Recovery Tax Act of 1981. This law has the potential to provide the most wide-reaching changes in tax law of this century. Included in a tax law for the first time are provisions whereby *all* workers can obtain a legal tax shelter for a portion of their incomes. The formal name of the tax shelter is Individual Retirement Arrangements. It is a savings program that lets you set money aside for retirement in what are commonly called Individual Retirement Accounts or IRA's. The contributions to IRA's are tax deductible and their earnings are not taxed until they are distributed.

The concept of IRA's is not new (they have been available since 1975); but, in the past, IRA's were available only to individuals not actively participating in another retirement plan. The new tax law, beginning with the 1982 tax year, allows any individual with earned income to set up an IRA.

The purpose of this paper will be to analyze the benefits of an IRA, and also to dispel any myths and exaggerations concerning them.

ELIGIBILITY AND CONTRIBUTIONS

All wage earners or self-employed persons, even if these persons are active participants in another tax qualified plan, are eligible to establish IRA's. This includes military personnel and civil servants who may be covered by a governmental retirement plan. The privilege is also extended to individuals who are currently participating in a tax sheltered annuity contract. However, a person with earnings from investments - but not compensation income - does not qualify for the special tax provisions set up for IRA's.

The new law allows as much as 100 percent of earned income, up to a maximum of $2,000 to be deposited in an IRA If both spouses work, each may establish his or her own IRA and each spouse may make contributions up to a maximum of $2,000 annually. In addition, a non-working spouse may have a separate IRA but contributions to the two accounts may not exceed $2,250 a year. The money may be divided between the two accounts anyway desired except that a least $250 must be placed in the account of the non-working spouse and no more than $2,000 may be placed in either account during the year.[1]

A speical provision in the law further provides that a non-working divorced individual whose former spouse had contributed to a spousal IRA during three of the five years immediately prior to the divorce may contribute up to $1,125 annually to an IRA even if he (she) remarries.

RESTRICTIONS ON IRA'S

Contributions to IRA's cannot be withdrawn without penalty before the age of 59½ (except in the case of disability[2] or death). Moreover, penalties are to be assessed for insufficient withdrawals after the age of 70½. While interest earned on IRA's is not taxed by the federal government until monies are withdrawn from the account, when withdrawals are made they are taxed as ordinary income.

If the contributions in an IRA are withdrawn early (before the age of 59½) this withdrawal will be assessed a federal penalty (tax) equal to 10% of the amount withdrawn. This tax is in addition to any that is due on the amount that must be included in gross income.

Whereas IRA contributions cannot be withdrawn without penalty before the age of 59½ individuals must start receiving income from their account before the end of the year in which they reach the age of 70½. The minimum amount that must be withdrawn is based upon two different formulas designed by the Internal Revenue Service (IRS). There is a 50% excise tax on any excess accumulation in the account after the age of 70½.

There is also a tax penalty for excess contributions to an IRA. An excess contribution is any amount over $2,000 that is placed in the account during any year. An individual must pay a 6% excise tax each year on these excess amounts for as long as they remain in the account.

In addition to Federal Tax Penalties, some financial institutions that manage IRA's also charge penalties for early withdrawal (later discussed).

IRA INVESTMENT ALTERNATIVES

The decision on how to invest IRA monies can be a difficult one due to the many investment alternatives available. This decision depends upon the risk one is willing to take in return for a possible higher yield; whether a person wishes to have his IRA professionally managed or manage it himself, and how much he wishes to pay in management fees. Table 1 contains illustrations of investment choices and assorted fees. Fees stated are general in nature and may vary from institution to institution. Also, many institutions will have variations and combinations of investments not shown.

Banks, Thrift Institutions and Credit Unions

Options granted by these institutions are similar in nature. They include certificates of deposit that have maturities ranging from 18 to 30 months, as well as regular savings accounts. Deposits with these institutions are federally insured, up to $100,000 and their management fees are the lowest available.

These financial institutions usually assess an early withdrawal fee consisting of the last six month's interest if the withdrawal infringes on the principal of the account. An individual may withdraw the accumulated interest without penalty at any time.

Mutual Funds

Mutual Fund companies are professional investment companies who sell securities to the public and invest the proceeds in accordance with a stated objective—income, capital gain, or both.[3] Usually there is no charge for setting up the account or for switching between funds. However, these funds are not insured so they do carry some element of risk. Since there are numerous funds, the element of risk is dependent upon the fund selected and an investor should carefully read the fund prospectus before investment.

Management fees are ordinarily ten dollars or less per year. Consequently, these companies provide professional management for an IRA at very little cost.

Insurance Companies

Insurance companies offer investment possibilities for IRA's in the form of annuities. "An annuity is a contract that provides an income for a specified period of time such as a number of years or for life."[4] The payout, per $1,000 invested, is based on average life expectancies, as well as the value of the investments purchased through the form of premiums.

There are two types of insurance IRA's, "a front loan annuity" that carries a sales charge which is deducted from the contribution (i.e., 7% per $1,000). With this type of annuity the insurance company will not charge a penalty if funds are withdrawn (there is still the federal tax penalty for early withdrawal).

The second type of annuity is called a "back loan annuity". There is no sales charge on this type of contract but there is a penalty of 7% if there is a withdrawal during the first year. The penalty scales down until it vanishes in the eleventh year.

Some insurance companies offer variable annuities (payments not fixed, varies with value of equities purchased) that are used to purchase mutual funds. These variable annuities fall into the back loaded annuity category.[5]

Brokerage Firms

Some brokerage firms provide the greatest variety of IRA investment possibilities. The account can be self directed, meaning that an individual can buy and sell the investments such as stocks, bonds, real estate, etc., or the funds can be invested in a professionally managed mutual fund package that the firm sells. Self-directed accounts are the most expensive with initiation fees ranging as high as $50, annual maintenance fees up to $50, plus any brokerage commissions. Professionally managed accounts carry a initiation fee of around $15 and an annual maintenance fee ranging from 25-35 dollars.

MYTHS VS. REALITY OF IRA INVESTMENT

Some advertisements assert that a 45 year old taxpayer, with a non-working spouse, who contributes $2,250 for 25 years, earning 15%, will retire a millionaire. If one takes this statement at face value, it is true if you deposit $2,250 a year for 25 years, your total contribution will be $56,250. At age 70½ the nest egg will be $550,602. Assuming 20 more years expectancy, the retiree withdraws $29,873 the first year. At 15% the nest egg earns $78,109. Each year the withdrawals and earnings increase until after five years the withdrawal will be over $50,000 a year. Continual compounding over the entire 20-year period will give a final withdrawal of half a million dollars. Total payout assumed under this method amounts to over $3 million.

This sounds excellent on paper but there are major flaws that should be understood. The calculation presented here assumes that, over the term of the investment, interest rates will remain at 15% which means that inflation will probably remain at a minimum of 13%. The real rate of return (difference between inflation rate and return on investments) over the last seventy-five years has averaged 2 percent. In essence the computation was based on inflated dollars, not real purchasing power. If inflation remains at 13% over the next twenty years, a gallon of gas could cost somewhere around $14 and a loaf of bread around $6. As quoted by A. Haworth Robertson (former chief actuary of the Social Security Administration):

> "Claims about becoming a millionaire should be tempered by the impact of inflation that will accompany the high rates of investment return. A more sensible assumption would be a real return of zero to 3%. A real return is the difference between what the IRA earns and the rate of inflation."[6]

Based on Mr. Robertson's recommendation of a young person age 25 who contributes $2,000 a year for 45 years compounded at 2% growth would have $143,000 based on today's dollar.

SUMMARY

Individual Retirement Accounts are

excellent savings opportunities for all whose financial circumstances permit them. They are not, however, the path to "easy street" upon retirement. IRA's give an excellent opportunity to shelter some income and to supplement other retirement sources. Before investment, however, an individual should fully investigate all alternatives, concentrating on the risk and management of each investment source.

TABLE 1
Shopping for an IRA

		Investment Choices	Service Charges		
			Initial Charges to Open Account	Annual Maintenance or Management Fees	Early Withdrawal Penalties
Banks, Thrift Institutions, Credit Unions		Certificates of deposit	Usually none	$10 or less	Minimum six months interest
		Savings accounts			None
Brokerage Firms	Self-Directed	Stocks, bonds Ginnie Maes, real estate, oil and gas	None to $30	$25 - $50, plus any brokerage commissions	None
	"Load" Funds	Money-market, stocks, bonds, stocks and options	8½% of investment	$2 - $9, $5 to switch funds	None
Insurance Cos.	"Front-Load"	Fixed-premium annuities	8¾% of investment	About $8 - $10	Usually none
	"Back-Load"	Variable-premium annuities	None	About $25 - $30	7% - 8% first year
"No-Load" Mutual Fund "Families"		Money-market, stocks, bonds, stocks and options	$5 or less	$10 or less Free switching	None

Source: Adapted from Wall Street Journal, Dec. 14, 1981, p. 52.

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[1] Tax Information Individual Retirement Arrangements (IRS Publication 590-1980).

[2] To be declared permanently disabled, a physician must determine that the condition has either lasted, or is expected to last 12 or more months.

[3] Jerome B. Cohen and Others, *Investment Analysis and Portfolio Management* (Irwin: New York, New York, 1977) pp. 610-611.

[4] Lewis E. Davis, *Dictionary of Insurance* (Littlefield: Patterson, New Jersey, 1959).

[5] Jill Bettner, "To Decide Where to Put Your IRA Dollars" (*Wall Street Journal*, December 14, 1981) p. 52.

[6] Randall Shoemaker, "Exaggerations Given Flawed IRA Picture" (*Army Times*, March 8, 1982) p. 26.

CAPITAL BUDGETING USED TO ESTABLISH A VALUE FOR A MERGER CANDIDATE

Phillip W. Balsmeier
Associate Professor of Management
Louisiana Tech University

INTRODUCTION

Capital budgeting is one criterion for evaluating a merger candidate. Four methods in particular—net present value, internal rate of return, profitability index, and payback period—may be used to assess the fair value of stock for a merger candidate. Capital budgeting is used to evaluate a merger candidate in much the same way it is used to evaluate any investment proposal: there is an initial outlay of cash or stock, followed by expected future benefits. The major difference in using capital budgeting to evaluate a merger candidate is that the initial investment may not be established and may be subject to bargaining. The usual problem of estimating future cash flows is not as difficult to deal with in assessing a merger candidate because the candidate is a going concern. Since the estimates of sales and cost are based upon past results, they are likely to be more accurate than estimates for new investment proposals. As an example of how capital budgeting can be successfully applied, the merger of Perfection Oil, Inc., (POI) and Sandersonville Shipbuilding Company (SSC) is illustrated.

THE NATURE OF EACH FIRM'S BUSINESS

POI's primary operations involve the refining and distribution of petroleum products. Other major activities are construction, coal mining, and production of chemicals. Also, to meet much of their transportation needs, POI maintains a large, single fleet of barges on inland waterways.

SSC's principal line of business is the production of offshore drilling rigs. The firm also constructs other types of oil service equipment including drill barges, tanker barges, pipeline barges, derrick barges, tugs, and drilling tenders.

Although the merger was initiated by POI, the supportive nature of SSC's undertakings provided both parties with a motive for merger. Since SSC's business was largely in areas directly related to and supportive of those of POI, the merger was expected to provide mutually beneficial results.

POI stock has been listed on the New York Stock Exchange for nearly three decades. Although SSC had been in operation for forty years, it was a closely-held corporation with no recent trading of its stock. Consequently, the market value of SSC's common equity was unknown. Because the market value of SSC was unknown, a standard procedure could not be used to arrive at the desired merger terms of a tax-free pooling of interests. Even so, it was possible to use capital budgeting to establish an exchange ratio which permitted consummation of the merger with a share-for-share exchange of common stock.

THE INITIAL STEP TO ESTABLISH THE EXCHANGE RATIO

In 1978, SSC has *345,000* shares of common stock outstanding with each having a *book value* of $16.65. For the same year, the *average market price* per share of POI's common was figured to be $17.00: an amount arrived at by dividing by eight the combined *high* and *low* prices for the four previous quarters.

With average market price per share of common for POI at $17.00 and the book value per share of SSC at $16.65, a *possible share-for-share* exchange was considered as an appropriate first step. With the combination to be handled as a tax-free pooling-of-interests transaction, a share-for-share exchange involving 345,000 shares of POI was to be provided to SSC's shareholders. Theoretically, SSC's stockholders were to realize a small premium of about 2.1 percent —

$$\frac{(\$17.00 - \$16.65)}{\$16.65}.$$

NET CASH OUTLAY BY POI: FOR THE USE OF CAPITAL BUDGETING CRITERION

Table 1 enumerates the factors taken into consideration in estimating the net "cash" outlay on the "net purchase price" for use of the capital budgeting criterion.

POI's management considered the "net purchase price" of $5,195,000 to represent the "cash outlay" required for the "acquisition" of SSC. Theoretically, with a "net purchase price" of $5,195,000 and with SSC's stockholder's receiving 345,000 shares of POI, the "price" POI paid for a share of SSC equalled

$$\frac{(\$5,195,000)}{345,000}$$

or $15.058. This represented a discount of about $1.59 a share ($16.650 - $15.058) below SSC's book value per share. From each firm's perspective, the exchange ratio of one-for-one represented a bargain for the stockholders of both firms.

PROJECTED CASH FLOW: SANDERSONVILLE SHIPBUILDING COMPANY

POI's management prepared a statement of projected net cash from SSC's operations for the period 1979 - 1989. Table 2 provides the figures and items taken into consideration. The approach used to determine net cash flow from operations is unique in that the amount needed to cover the dividend payments to SSC's stockholders and the capital expenditure required for SSC's operations over the period is deducted from the internally generated funds (Net Income After Tax *plus* Depreciation figures of SSC for each year.).

POI's management found it necessary to re-establish its weighted average cost of capital to establish an appropriate discount rate to be used for SSC's net cash flow figures. Table 3 specifies the factors taken into account and the methodology used by POI to figure the cost of capital.

POI's weighted average cost of capital of around 15 percent used as a discount factor for SSC's projected cash flows, provided a positive net present value of 2,398,640. Additionally, the internal rate of return and the profitability index were 16.869 percent and 1.46 percent respectively.

Table 1

NET "CASH" OUTLAY BY POI

POI's initial investment (345,000 shares × $17)	= $ 5,865,000
Less: Excess working capital of SSC	= -2,020,000
	$ 3,845,000
Plus: Long-term Debt of SSC	+1,350,000
Equalled: "Net purchase price" or net "Cash" outlay	$ 5,195,000

Table 2

SANDERSONVILLE SHIPBUILDING COMPANY

Projected Cash Flow: 1979 - 1989
(Thousands of Dollars)

Years	(1) Net Income After Taxes	(2) Non-Cash Charges	(3) (1) + (2) Gross Cash Flow	(4) Capital Expenditures	(5) Working Capital Increases	(6) (3)–(4)+(5) Net Cash Flow	(7) Dividend Requirements	(8) (6) - (7) Net Cash Flow After Dividends
1	2,010	390	2,400	1,000	-0-	1,400	620	780
2	2,150	450	2,600	850	540	2,290	620	1,670
3	2,720	490	3,210	750	40	2,500	620	1,880
4	2,520	520	3,040	750	70	2,360	620	1,740
5	2,200	650	2,850	750	-0-	2,100	620	1,480
6	2,640	670	3,310	750	-0-	2,560	620	1,940
7	2,170	690	2,860	750	-0-	2,110	620	1,490
8	2,150	720	2,870	750	-0-	2,120	620	1,500
9	2,130	730	2,860	750	-0-	2,110	620	1,490
10	2,120	760	2,880	750	-0-	2,130	620	1,510
Totals	22,810	6,070	28,880	7,850	650	21,680	6,200	15,480

Table 3
PERFECTION OIL, INC.
The Average Cost of Capital
1978

	$Amount	Proportion ×	Component Cost =	Product
Interest-Bearing Debt[1]	$160,000,000	.32653	.061875[2]	.020204
Preferred Stock	39,000,000	.07959	.121790	.009693
Common Equity	291,000,000	.59388	.194158	.115306
	$490,000,000	1.00000		.145203

Weighted Average Cost of Capital Rounded to a Figure of 15%*[3]

1. Interest-bearing debt consists of debentures, convertible subordinated debentures and notes.
2. The tax rate of 34% is used to figure the after-tax interest cost. The dollar amount of taxes paid figure for the year incorporates taxes currently payable and deferred and the investment tax credit.
3. To figure the weighted average cost of capital the data is taken entirely from the balance sheet (book values) and the income statement (book rates). Market or liquidation values of all security types are altogether ignored. Actual dollar amount of interest and preferred dividends paid out and the earnings realized on common equity are taken into account.

Table 4
CAPITAL BUDGETING CRITERIAS USED BY PERFECTION OIL, INC. TO EVALUATE SANDERSONVILLE SHIPBUILDING COMPANY AS A MERGER CANDIDATE

(Cash Flow Figures in Thousands)

I. NET PRESENT VALUE OF PROJECTED CASH FLOWS; DISCOUNT RATE 15 PERCENT

YEARS	1	2	3	4
Net Cash Flow	$780	$1,670	$1,880	$1,740
Present Value Factor at 15%	×.86957	×.75614	×.65752	×.57175
Present Value of Cash Flows	$678.26 +	$1,262.75 +	$1,236.13 +	$994.85

5	6	7	8	9	10
$1,480	1,940	$1,490	$1,500	$1,490	$1,510
×.49718	×.43223	×.37594	×.32690	×.28426	×.24718
$735.83 +	$838.53 +	$560.15 +	$490.35 +	$423.55 +	$373.24

TOTAL PRESENT VALUE OF NET CASH FLOW = $7,593,640
LESS: NET PURCHASE PRICE OR CASH OUTLAYS = $5,195,000
NET PRESENT VALUE $2,398,640

II. THE INTERNAL RATE OF RETURN 16.869%

III. PROFITABILITY INDEX $\frac{\$7,593,640}{5,195,000} = 1.46$

IV. THE PAYBACK PERIOD 3 YEARS AND 180 DAYS.

The payback period was approximately three years and 180 days.

On each of the considerations, the merger proposition appeared to be very sound financially. Table 4 summarizes the calculations.

CONCLUSION

The capital budgeting example yielded positive results for the merger of POI and SSC on a share-for-share basis. Both firms being public, the use of the capital budgeting procedure enabled the assessor to use easily ascertainable information to evaluate the prospective merger. Furthermore, capital budgeting produced results which had accept-reject constraints which were easily interpreted.

Capital budgeting appears, then, to be one way of evaluating a prospective merger. However, this is true only if the user of the capital budgeting procedure realizes the limitations inherent in capital budgeting. Such limitations follow.

First, this procedure is best suited for public firms. For a privately held firm, the information needed in the capital budgeting analysis would, as a rule, not be available to the assessor of the merger. For a publicly held firm, the information would be available in the form of annual financial reports.

Another difficulty in the capital budgeting process is in predicting net cash inflow and net income for a period of years. As the length of time coverage increases, the predictors turn from precise expectations to estimates. To partially alleviate this problem, a range of rates could be used rather than a single factor.

One should also realize that capital budgeting may not predict the total consequences of the decision. For example, the merger of POI and SSC could possibly create friction between the respective managements to the extent that they may engage in unobservable acts that could be detrimental to the merger. While capital budgeting theoretically should include such factors, anticipating all possible consequences of accepting a decision is difficult. This makes sound managerial judgement a necessity when evaluating merger proposals.

Despite the limitations, capital budgeting, when used properly, is an efficient and easily implemented procedure to evaluate prospective mergers.

ARKANSANS AND THEIR INSTITUTIONS: THE QUESTION OF PUBLIC CONFIDENCE AGAIN*

Robert L. Savage
Professor of Political Science
University of Arkansas, Fayetteville

Diane D. Blair
Assistant Professor of Political Science
University of Arkansas, Fayetteville

INTRODUCTION

It has been a decade now since the series of episodes known collectively as Watergate, a traumatizing watershed which marked a distinct decline in the confidence Americans held for a wide array of institutions.[1] That declining confidence seemed to stabilize in the late 1970's as reported in several continuing polls across that span of time.[2] Still, such national surveys may mask variations among the populations within regions or within single states. Occasional state surveys may address the question of institutional confidence from time to time, but cross-temporal series from particular states are lacking. The report that follows is an initial step in just such an exploration of changes in public confidence in one American state, *Arkansas*.

DESIGN OF THE STUDY AND THE BASES FOR COMPARISON

In April 1982, as part of a larger study dealing with political ideology and perceptions of the institutional fabric of political life, a statewide sample of Arkansans was asked to indicate degrees of confidence held in twelve institutions. For the most part this portion of the questionnaire replicated a survey conducted in March 1980.[3]

Both surveys were carried out by the Arkansas Household Research Panel (AHRP) of the University of Arkansas using a mail survey sent to a "voluntary" but initially random sample of households across the state. Due to attrition over time, such a mail panel invariably becomes biased toward more articulate respondents. Not surprisingly, such samples typically overrepresent certain population elements, for example, the sample is considerably better-educated and slightly wealthier than the population at large.

For those seeking politically useful data, the sample, while not an exact mirror of the Arkansas population generally, is probably highly representative of those most likely to be voters, opinion leaders, and political activists. For our purpose, that of accurately measuring public confidence, if the results reported here are biased in any particular direction, it would likely be in a positive fashion. That is, given the fact that more successful segments of the population are likely to place more trust in public and private institutions, Arkansans generally would have even less institutional confidence than that exhibited by our sample. As Table 1 indicates, our 1982 Arkansas findings raise some questions about national reports of the bottoming out of declining institutional confidence trends.

Before examining our findings in detail, certain departures from the 1980 study should be explained. The earlier study focused on popular perceptions of banks as social institutions. Accordingly, nine other institutions were selected for comparative purposes, and respondents were asked to rate all ten on a common scale. Since the present authors were concerned

TABLE 1
INSTITUTIONAL CONFIDENCE: 1980 AND 1982

Institution	Year	% Who Indicate* A great deal of confidence	Only some confidence	Hardly any confidence	No response
Churches	1982	68.1	25.4	5.9	0.6
Higher Education	1980	47.1	47.0	5.3	0.7
	1982	46.3	45.5	6.9	1.3
Television News	1980	24.3	63.4	11.5	0.8
	1982	20.5	60.8	17.6	1.1
Newspapers	1982	16.1	66.2	17.0	0.8
Medicine	1980	51.1	42.9	4.8	1.3
	1982	50.7	43.8	5.0	0.6
Banks	1980	50.7	42.0	6.4	0.8
	1982	48.8	44.0	6.1	1.1
Savings and Loans	1980	44.0	48.6	6.4	1.0
Organized Labor	1980	10.8	44.3	44.2	0.7
	1982	7.8	40.7	50.5	1.0
Electric Utilities	1980	18.1	46.8	34.3	0.8
Utilities	1982	7.8	44.0	47.4	0.8
Oil Companies	1980	8.0	26.1	64.9	1.0
	1982	5.0	36.3	57.6	1.1
Local Government	1982	15.3	62.5	21.4	0.8
State Legislature	1980	7.2	60.4	31.2	1.1
	1982	7.5	65.2	26.6	0.6
Governor's Office	1980	14.3	57.0	28.2	0.5
Office of the Governor	1982	13.2	51.4	35.0	0.4

*There were 609 respondents in the 1980 survey and 523 respondents in the 1982 survey.

with the relationship between policy orientations and the perceived framework of institutional interests in the political environment, the list of institutions to be rated was both expanded and altered.

Seven institutions - *medicine, banks, higher education, television news, organized labor, oil companies,* and *state legislature* - are labeled exactly as in the earlier survey in order to facilitate temporal comparisons. Because of our broader purposes we decided to exclude *savings and loans* which, at least with regard to political interests, are not likely to be perceived as very distinctive from banks. In line with our broader purposes, two other institutions were labeled differently: electric utilities was expanded to *utilities; governor's office* was changed to *office of the governor* to better direct the attention of respondents to the institutions rather than to the incumbent. Finally, we added three other institutions - *churches, newspapers,* and *local government.* Despite these changes, a solid basis for comparison remains.

THE MORE THINGS CHANGE . . .

Stability in the distribution of the extent of confidence among Arkansans occurs only for three of the nine institutions for which there is comparable data as shown in Table 1. *Higher education, medicine,* and *banks* retain, within the limits of sampling error, their relatively high levels of regard among Arkansans.

Other institutions - *television news, organized labor, utilities,* and the *office of the governor* - exhibit definite declines in public confidence, primarily in terms of more people indicating "hardly any confidence." While the change of labels in the latter two cases might marginally cloud the comparative utility of these findings, the decline in these categories could not reasonably be attributed to the labels *per se.*

Despite the general tendency toward decline, two institutions exhibited a slight improvement in their public images, *state legislature* and *oil companies.* In both instances, however, improvement reflects only a noticeably smaller number of respondents rating them as warranting "hardly any confidence." Probably more noteworthy is that only 5 percent of the respondents indicate that they have "a great deal of confidence" in *oil companies,* down from 8 percent in 1980, while only 7.5 percent have such confidence in the *state legislature,* up 0.3 percent from 1980.

Generally, then, our findings raise some questions about the validity of any national generalizations that public confidence in institutions, severely shaken by the events surrounding Watergate, is now rebounding. At least in Arkansas, if absolute rates in distribution are the concern, there is as yet no sound basis for optimism. While in 1980 only two of the ten institutions had less than 10 percent of the sample willing to indicate the strongest rate of confidence in them, in 1982 that rating applied to four of twelve institutions.

There is, however, a measure of stability in Arkansans' institutional confidence apparent when comparing the relative rankings of institutions vis-a-vis one another. As shown in Table 2 their relative standings did not change much in the two-year period. These rankings are based upon weighted scalar values that take account of the varying distributions of response across the three ratings presented to the respondents. Thus, the churches category draws a large number of "great deal of confidence" and few "hardly any" ratings, and has a very large score while the oil companies grouping exhibits the reverse pattern.

The scaled values are determined as follows: the percentage of respondents (from Table 1) replying "a great deal of confidence" is doubled and added to the percentage of respondents replying "only some confidence." This sum is then divided by two, thus allowing a maximum possible score of 100: the hypothetical value that would be obtained if all respondents rated an institution with "a great deal of confidence." This weighted scoring scheme allows a more precise ranking of the institutions inasmuch as it accounts for lower ratings (or no response) as well as the highest rating. For example, in 1982, the *state legislature* had fewer people to rate it in the strongest category than did the *office of the governor,* but the *state legislature* also had fewer people to rate it with "hardly any confidence."

The more highly regarded institutions have generally maintained their relative rankings over the two-year period. The changes have occurred among the bottom half of the ranked institutions, most notably the *governor's office.* Still, the findings exhibited in Table 2 give support to that old saw, "The more things change, the more they remain the same."

BUT WHAT DOES IT REALLY MEAN?

One might conclude that when the population exhibits majority support, barely so in one instance, in assigning the strongest measure of confidence to

TABLE 2

THE INSTITUTIONS RANKED: 1980 AND 1982

1980			1982		
Rank	Score	Institution	Rank	Score	Institution
1	73	Medicine	1	81	Churches
2	72	Banks	2	73	Medicine
3	71	Higher Education	3	71	Banks
4	68	Savings and Loans	4	69	Higher Education
5	56	Television News	5	51	Television News
6	43	Governor's Office	6	49	Newspapers
7	37	State Legislature	7	47	Local Government
8	33	Electric Utilities	8	40	State Legislature
9	32	Organized Labor	9	34	Office of the Governor
10	21	Oil Companies	10	30	Utilities
			11	28	Organized Labor
			12	23	Oil Companies

only two of twelve basic institutions in the society, there is a fundamental crisis in legitimacy of the social order itself. However, before anyone becomes concerned that Arkansas as a civil society is on the brink of foundering, consider the following points.

First, only two of the twelve institutions on the list, *organized labor* and *oil companies*, elicited an absolute negative confidence rating, while less than 7% of the sample gave a no-confidence rating to four major segments of contemporary society: *churches, medicine, banks* and *higher education*. At minimum, this suggests that Arkansans are reasonably satisfied with the professionalism or competence of these four institutions to perform the responsibilities entrusted to them, for example, banks are secure places for their money, and doctors will cure their diseases. It also suggests that what is actually being measured is the popular perception of the general level of altruism practiced by these institutions. Thus, *churches, medicine, banks,* and *higher education,* if not really "full service institutions" as the bankers would have it, are nonetheless perceived as directed toward broader conceptions of the "public good." In contrast, institutions which are seen as partisan, self-serving, combative, or narrowly profit seeking receive much lower ratings. Nevertheless, as the high rankings of *medicine* and *banks* indicate, it is entirely possible to be both profitable and "popular."

The very low rankings of *utilities* and *oil companies* are not surprising. Utility rates and gasoline price increases over recent years, whether justified or not, have inflicted what is felt as real pain on many Arkansans. Undoubtedly if a survey such as this one had been taken in Arkansas during the Great Depression years when banks were foreclosing on homes and farms but while utilities were bringing the welcome benefits of electric power, the respective ratings of these two institutions may have been reversed. What this suggests is that so long as economic realities and the nightly news are forcing institutions into villainous roles, even enormous amounts of institutional advertising can make no more than a marginal difference in public perceptions.

That the communication media which contribute to these negative perceptions themselves elicit "a great deal of confidence" from less than one-fourth of the sample is only one of several ironies here. Another is that two of the state's major elective institutions, the *state legislature* and *office of the governor*—institutions which are supposed to be the people, speak for the people, and represent and protect the people against their perceived economic adversaries—receive three times as many strongly negative as strongly positive ratings.

Everett Ladd, a longtime student of confidence among Americans, has suggested that what appears to be declining institutional confidence, in fact, reflects sensitivity to how contemporary institutional leaders are performing.[4] According to Ladd, national surveys exhibit a fundamental belief that the American system will ultimately prevail and is capable of producing heroes once again. From this interpretation it follows that a few heroic individuals could do wonders for the public mood and would undoubtedly raise the absolute baseline of institutional confidence.

Another possibility is that the public is basically skeptical of all large, remote, impersonal institutions. These vague feelings of distrust are displaced, however, by positive personal experiences with "my banker," "our doctor," "our daughter's college." This is suggested not only by the data here (few Arkansans have had a positive personal experience with an oil company), but also by national polling data indicating widespread dissatisfaction with the way things are going in the country, but at the same time, overwhelming satisfaction with the way things are going in their own personal lives.[5] Decentralized institutions which have opportunities for positive personal relationships, and use those opportunities productively, reap confidence accordingly.

In summary, Arkansans are neither wholly sour and suspicious nor wholly trusting and confident. They make measurable distinctions in the confidence they feel is due to a variety of public and private institutions. Furthermore, these confidence ratings are subject to change by events and individuals.

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*The research reported here was partially funded by a research incentive grant provided by the J. William Fulbright College of Arts and Sciences of the University of Arkansas.

[1] See Phillip Shaver, "The Public Distrust," *Psychology Today*, 14 (October, 1980), 44-46; and Everett Carll Ladd, Jr., "The Polls: The Question of Confidence," *Public Opinion Quarterly*, 40 (Winter, 1976-1977), 544-552.

[2] Shaver, ibid.

[3] See Robert L. Savage and Charles R. Britton, "The Question of Public Confidence: Arkansas and the Nation," *Arkansas Business and Economic Review*, 13 (Winter, 1980), 20-23, and more generally, Charles R. Britton and Robert L. Savage, *Popular Perceptions of Banks among Arkansans: Explorations in Institutional Imagery* (Fayetteville: Bureau of Business and Economic Research, University of Arkansas, 1981).

[4] Ladd, op. cit, p. 552.

[5] See "Institutions and Values Outlook," *Opinion Outlook*, 2 (July 15, 1982), 3-6.

SALARIES AND OTHER FACTORS IN TURNOVER AMONG DATA PROCESSING PROFESSIONALS IN ARKANSAS STATE AGENCIES

Henry C. Thibault
Associate Professor of Data Processing and Quantitative Analysis
University of Arkansas, Fayetteville

INTRODUCTION

Turnover among data processing professionals in Arkansas state agencies has been seriously high in recent years. The problem has prompted the Arkansas Legislative Council to form a Task Force to study and report on turnover. This article expands on the author's preliminary report to the Task Force.

Salaries are one of the most important factors in turnover. This report compares salaries for professional data processing positions in Arkansas state government with salaries being paid in similar positions in industry. Data sources include data processing trade publications and the author's interviews with employees and managers in industry and Arkansas State Government. Industries surveyed were limited to those hiring college graduates for entry-level positions, because these firms compete for personnel with and most resemble large data processing centers in state agencies.

THE TURNOVER PROBLEM

Table 1 illustrates numerically the turnover among professional employees reported by the two largest Arkansas state government data processing installations: Department of Computer Services ("DCS") at Little Rock, and University of Arkansas Computing Services ("UACS") at Fayetteville.

TABLE 1
Professional Employee Turnover in Arkansas State Government Data Processing

Agency	Job Category	Type of Statistic	FY 1978	FY 1979	FY 1980	FY 1981	Avg.
DCS	Supervisory	Positions	19	19	20	20	
		Resignations	2	7	9	2	
		% Turnover	10.5	36.8	45.0	10.0	25.6
	Technical	Positions	76	76	88	88	
		Resignations	5	20	26	14	
		% Turnover	6.6	26.3	29.5	15.9	19.6
UACS	Supervisory	Positions	7	8	8	7	
		Resignations	1	3	1	0	
		% Turnover	14.3	37.5	12.5	0.0	16.1
	Technical	Positions	20	19	19	20	
		Resignations	5	4	3	8	
		% Turnover	25.0	21.0	15.8	40.0	25.5

In a telephone survey, firms in this region that compete directly with Arkansas state agencies for data processing personnel reported estimated turnover rates between 6 and 18 percent for the past four years, with an average of 9 percent. Myers reported that 12 percent of data processing professionals surveyed were actively seeking a new job.[1] Crane noted 20 percent average data processing turnover in the insurance industry.[2] Cherlin characterizes turnover of 25% to 35% as "usually deadly."[3] DCS and UACS are on the borderline of this range, in general, and exceed it in some years and in some critical job categories.

Two of the most serious results of turnover are *lack of continuity* and turnover-related *costs*. "Lack of continuity" refers to conditions that arise when most employees have been with the employer for only a few years. Assuming a uniform tendency to resign and that resignations occur at a constant percentage ("turnover rate") of "R" at random points in time, the percentage of affected employees in their Nth year with their employer is:

$$R(1-R/100)^{(N-1)}$$

Table 2 gives values calculated with this formula for various turnover rates.

TABLE 2

Tenure with Current Employer as a Function of Turnover Rate

Tenure with Current Employer	Turnover Rate 10.0%	 20.0%	 30.0%	 50.0%
0 to 1 years	10.0%	20.0%	30.0%	50.0%
1 to 2 years	9.0%	16.0%	21.0%	25.0%
2 to 3 years	8.1%	12.8%	14.7%	12.5%
3 to 4 years	7.3%	10.2%	10.3%	6.3%
over 4 years	65.6%	41.0%	24.0%	6.3%

For example, at a turnover rate of 20%, the percentage of employees with two to three years of tenure is:

$$20(1-20/100)^{(3-1)} = 20(.8)^2 = 12.8\%$$

Note that under high turnover conditions (30 percent or greater) relatively few employees will have been on the job more than four years and over half the employees will have less than two years of tenure.

Cherlin identified many costs caused by turnover.[4] He viewed an often-cited estimate of $10,000 for replacing one person in one job as "on the low side." Sources of turnover-related costs were listed as:

1. Documenting his projects for transfer to someone else.
2. Lost time for saying farewells and discussing his departure.
3. Possible "domino effect" if he influences others to leave (he often gets a bonus from his new employer).
4. Time lost while his projects lie dormant.
5. Hiring a replacement, which costs $4,000 to $10,000 whether an agent is used or not.
6. Shifting and retraining other personnel.
7. In-processing and training (months of salaries and computer costs, plus training materials).
8. Planned overstaffing as turnover

backup.

9. Higher salary for his replacement.

It is especially ironic to pay the replacement a salary for which the former employee would have been delighted to remain. However, under most salary policies, such a large increase is impossible to give a current employee, no matter how outstanding his performance may be.

In summary, turnover is relatively high in Arkansas state government data processing, accompanied by many organizational and cost difficulties.

WHAT CAUSES TURNOVER?

As with most subjective questions, there is no clear answer. Turnover itself creates further turnover by increasing stress on the remaining employees (Beeler[5]) and by generating recruiting efforts from former employees (Cherlin[6]), as mentioned above. Crane reported the following factors in order of their effect on turnover among data processing professionals:[7]

1. Salary
2. Challenge and interest
3. Location
4. Technical training provided by employer
5. Pressure
6. Benefits

Beeler quotes an experienced executive in listing the following reasons (*not* in order of importance):[8]

—Limited opportunity for leaving
—Overlooked for promotion
—Obsolete facilities
—Ill-defined or limited career paths
—Wants experience in new areas
—Frustration with over ambitious projects
—Salary

It seems appropriate to mention that both salary and non-salary factors, which are also of obvious importance, contribute to set of problems that have recently become front-page topics in data processing publications under the collective heading of "Job Burnout."[9] Burnout causes not only turnover, according to Beeler, but also other effects ranging from lost energy and enthusiasm through tardiness and absenteeism, even extending to theft, fraud, sabotage, and physical assaults.[10] However, salary is clearly an important factor in turnover, and the remainder of this report concentrates on salaries.

ENTRY-LEVEL DATA PROCESSING SALARIES FOR COLLEGE GRADUATES

Table 3 presents distributions from a sample of salary offers received by 1982 May and Summer graduates from the University of Arkansas with BSBA degrees in Data Processing or in Accounting and Data Processing. The data were obtained by interviewing twenty-seven graduates and many of their employers. The distributions in Table 3 summarize salary offers from employers in Arkansas, other states, and combined.

There was little correlation between grade average and salary offer, but students with higher grades received a larger number of offers. Correlation between location and salary offers was significant, with Arkansas offers being lower than out-of state offers. Note, however, that the highest of all offers (as well as the lowest) was for an Arkansas location. Also, no students *accepted* in-state offers below $18,500, and only two of seven Arkansas acceptances were below $21,800. The higher in-state offers were for positions in Little Rock, Forth Smith, and Fayetteville. Firms who have offered high salaries for Arkansas locations in recent years include AT&T (Southwestern Bell), ALCOA, Arkansas Best Corporation, Dillard's, IBM, NCR, Texas Instruments, public accounting firms, and a variety of small specialized

TABLE 3

Entry-Level Salary Offers to 1982 Data Processing Graduates

Salary Offer ($000 per year)	Arkansas	Other States	Combines
below 15	1	0	1
15-17	2	0	2
17-19	1	0	1
19-21	1	5	6
21-23	2	18	20
23-25	3	17	20
Average Offer	$19,929	$22,801	$21,867
Lowest Offer	$14,000	$19,000	$14,000
Highest Offer	$24,600	$24,400	$24,600

computer-related firms. In Arkansas and surrounding states, well-qualified 1982 college graduates are *accepting* salary offers averaging well in excess of $22,000.

The *highest* entry-level offer for a comparable position ("Applications Programmer I") in state government is $15,990 (Grade 16, Step 6). The averages given above are about $6000 (38%) more than this figure. As one student put it, "That's enough to rent an apartment and make a car payment, too."

Arkansas is not as attractive to new graduates as is sometimes asserted. Only about one-third of students polled would work in Little Rock or Fort Smith in preference to Tulsa or Dallas. Only one student accepted a lower salary to work in Arkansas. The difference was slightly more than $200 per month. Three students preferred to work out of state at slightly lower salaries than available to them in Arkansas. This pattern is consistent with previous years' experience.

The conclusion suggested by this section is that entry-level data processing salaries in Arkansas state agencies should be increased substantially to attract applicants with strong qualifications.

SALARIES FOR EXPERIENCED DATA PROCESSING PROFESSIONALS

Everyone in the United States, just as in Arkansas, data processing salaries vary over a wide range for a given job classification. Average salaries depend on factors such as:

1. Geographic location
2. Branch of industry.
3. Size of computer operations.

Besides in in-state opportunities mentioned earlier, Arkansas state agencies must compete for personnel with the highest-paid locations (Oklahoma and Texas), industries (oil, chemicals, electronics and computers, and aerospace), and computer sizes.* This statement is based on surveys in *Computerworld, Computer Careers News, Datamation*, and *Infosystems*. Data processing employment agencies and corporate recruiters confirmed these impressions when questioned by telephone.

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*Several firms outside of Arkansas have in one building more computer power than exists in the entire state of Arkansas.

Unfortunately, published surveys from periodicals and employment agencies do not present their information in a form that would allow the effect of location, industry, and computer size to be measured. Numeric salary data reported below represent national averages, and are therefore conservative estimates of market salary levels. This is supported by a November, 1980 survey conducted by the author, in which Oklahoma and Texas firms recruiting in Arkansas reported significantly higher salaries than national averages.

Given these limitations, Table 4 presents salaries for five types of positions.

1. "*Entry P/A*"—An entry-level applications programmer/analyst with a college degree in a computer-related field from an accredited institution but little or no experience. This corresponds approximately to an Arkansas state job class title of "Applications Programmer I."
2. "*Exper. P/A*"—An applications programmer/analyst with two or more years of experience; corresponds approximately to "Systems Analyst II."
3. "*Super. P/A*"—An applications programmer/analyst with several years of experience whose responsibilities include planning, project management and personnel evaluation; corresponds approximately 'UAF Sysems Analyst III."
4. "*Sys. Prog.*"—The experienced systems programmer; corresponds closely to "Systems Programmer."
5. "*Director*"—The director of all computer-related activity at a given installation; roughly comparable to the Director at DCS or UACS.

For each of these position types, Table 4 presents yearly salaries for the past five fiscal years in two categories:

1. "*Surveys*"—Composite of surveys from sources such as periodicals (*Datamation, Infosystems*) and nationwide employment agencies Source EDP). For some years, some sources were unavailable or did not include some job catagories, but all years reflect the averaging of at least two sources.
2. "*AR Govt*"—These are actual salaries paid to individuals or averages from several individuals working for state agencies. Wherever possible, salaries in successive years for a given position type represent actual salary history for the same person or group of persons for the period.

In addition, a "UA DP Grads" category is included under "entry P/A" to reflect typical offers reported to the author by graduates during those years. The average for FY 82-83 is shown in Table 3 as $21,867.

The last column of Table 4 shows what percentage increase would have had to be given each category of state employees in FY 81-82 to bring them up to the national survey composite.

Table 5 reports the data from Table 4 in terms of annual percentage increase. The last column in Table 5 reports the compound rate of increase between FY 78-79 and FY 81-82. Telephone interviews of alumni and their employers generally confirmed the percentages reported in Table 5.

These tables show that Arkansas government lags far behind national averages in salaries for experienced data processing professionals. Larger percentage raises have begun to help, but will have to continue for years at current rates before the gaps are closed. The critical position of experienced programmer/analyst continues to deteriorate in relative salary.

It seems appropriate to note that "Labor Market Special Entry Rates" are raising increase percentages above the currently regulated 5.5% flat rate. The author cannot comment on this practice without further study, except to note that it appears to be a positive step, albeit at some administrative cost for processing forms, establishing new anniversary dates, etc.

OTHER CONSIDERATIONS

Two questions deserve further analysis. The first is whether employees actually leave state government for other jobs in this geographic region. There are several indications that they do. Perhaps the most compelling are the conditions that led to the formation of the Task Force. Also, several friends and former students of the author have made the transition. Finally, in a survey conducted by the author in 1980, University of Arkansas Computing Services employees were asked to rank several cities where job opportunities are available. Average responses are given in Table 6. The column "Firms" was added to indicate major data processing employers operating in each city who recruit in Arkansas.

It is clear that the employees find Tulsa an attractive location on all counts and show some willingness to relocate to practically any of the other cities where good salary opportunities are available. In each case, there were usually at least a few employees that gave each of the cities a maximum score.

Another question is whether state salaries should be raised to compete with those firms mentioned in this report. The

TABLE 4

Comparison of Average Data Processing Salaries Between Surveys of Industry and Arkansas State Employees

	Annual Average Salaries for FY:					Surveys % Above AR Govt
	77-78	78-79	79-80	80-81	81-82	
Entry P/A						
Surveys:	14,800	16,000	17,600	18,700	20,100	47.5%
UA DP Grads:	14,400	15,600	16,800	18,600	20,400	
AR Govt:	–	8,736	9,204	11,200	13,624	
Exper. P/A						
Surveys:	20,100	22,300	24,200	28,600	32,300	94.6%
AR Govt:	–	12,636	13,338	14,900	16,601	
Super. P/A						
Surveys:	24,000	26,500	29,500	34,700	39,100	48.6%
AR Govt:	–	20,852	21,996	22,932	26,312	
Sys. Prog.						
Surveys:	21,300	25,800	29,500	33,500	36,100	48.7%
AR Govt:	–	16,974	17,940	20,900	24,284	
Director						
Surveys:	36,800	38,400	40,100	45,100	49,300	21.1%
AR Govt:	–	27,132	28,625	32,500	40,700	

TABLE 5

Percentange Increases in Data Processing Salaries

	Percent 79-80	Increase 80-81	Over Previous 81-82	FY: 82-83	Overall Compound
Entry P/A					
Surveys:	10.0	6.3	7.5	--	7.9
UA DP Grads:	7.7	10.7	9.7	11.8	10.0
AR Govt:	5.4	21.7	21.6	--	16.0
Exper/ P/A					
Surveys:	8.5	18.2	12.9	--	13.1
AR Govt:	5.6	11.7	11.4	--	9.5
Super. P/A					
Surveys:	11.3	17.6	12.7	--	13.8
AR Govt:	5.5	4.3	14.7	--	8.1
Sys. Prog.					
Surveys:	14.3	13.6	7.8	--	11.8
AR Govt.	5.7	16.5	16.2	--	12.7
Director					
Surveys:	4.4	12.5	9.3	--	8.7
AR Govt:	5.5	13.5	25.2	--	14.5

author believes that it would not be necessary to match exactly the high salaries available in surrounding states. Qualified professionals, especially Arkansas natives, would probably accept salaries somewhat below out-of-state alternatives. This may vary between different Arkansas locations.

Before making any wholesale raises of state salaries, employee productivity should be considered. There is not much point in simply giving across-the-board raises of fixed amounts or percentages. Paying a $15,000 employee $25,000 will not make him worth $25,000. The author's experience and contacts with data processing management in many firms have shown that high qualification standards and salaries must be coupled with good benefits, training, working conditions, modern facilities, etc. to achieve highest productivity. This reduces the total cost of accomplishing a given volume of work.

Salary adjustments thus must be considered together with organizational factors.

RECOMMENDATIONS

The State of Arkansas should review its data processing salaries and salary increments in light of the data presented above. However, salary adjustments and future increases should be made on the basis of individual productivity rather than at a flat rate. Also, salary is not the only component of the working environment. Organizational changes may be needed, too, and they will be difficult. For instance, evaluation of personnel productivity is a key component of a properly administered salary program, but it is one of the most controversial and litigation-prone management activities.

In conclusion, therefore, salaries are only one part of a much larger problem but they are clearly too low in Arkansas state government data processing.

TABLE 6

Employees' Reactions to Prospective Work Locations

City	Cost of Living*	Quality of Life*	Would you work there?**	Firms
Bartlesville, OK	2.3	1.7	2.1	Phillips
Benton, AR	2.1	1.5	1.9	ALCOA
Dallas-Fort Worth	1.6	1.8	1.9	TX Instruments, TX Power & Light, Gen. Dynamics, MOSTEK, Public Accounting
Fort Smith	2.0	1.6	2.3	Ark. Best
Houston	1.7	1.6	2.0	Shell, Texaco, Exxon, IBM, Public Accounting
Little Rock	2.2	1.7	2.5	AT&T, IBM, Dillard's, Public Accounting
Ponca City, OK	2.3	1.3	2.0	Conoco
Tulsa, OK	2.4	2.3	3.3	Shell, AMOCO, Cities Services, American Airlines, Public Accounting

*1=worse, 2-similar, 3-better than Fayetteville.
**0=never, 1=probably not, 2=maybe, 3=probably, 4=yes.

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[1] Edith D. Myers, "Dwindling Supply of People," *Datamation* 26 (January 1980): 82-85.

[2] Janet Crane, "Personnel Trends," *Datamation* 27 (July 1981): 96.

[3] Merrill Cherlin, "The Toll of Turnover," *Datamation* 27 (April 1981): 208-212.

[4] Ibid.

[5] Jeffry Beeler, "Jobs Taking Mental, Physical Toll on DPers," *Computerworld* 16 (January 11, 1982): 9.

[6] Cherlin, "The Toll of Turnover," pp. 208-212.

[7] Crane, "Personnel Trends," p.26.

[8] Jeffry Beeler, "Exec Indentifies Seven Reasons Why DPers Quit," *Computerworld* 16 (April 19, 1982): 25.

[9] Merrill Cherlin, "Burnout: Victims and Avoidance," *Datamation* 27 (July 1981): 92-99 and cover; and Jeffry Beeler, "Job Burnout: It's Becoming an Epidemic in DP Centers," *Computerworld* 16 (January 11, 1982): 1.

[10] Beeler, "Job Burnout," p. 1.

CENTER FOR MARKETING RESEARCH AND MODELING: FROM AHRP TO WHERE?

William R. Darden
R.A. and Vivian Young Distinguished Professor of Business Administration
University of Arkansas, Fayetteville

"How can the College of Business Administration at the University of Arkansas best use its resources to stimulate research in business, train doctoral students, and provide research services to the state?" That question was raised by Dean John P. Owen in the spring of 1976. One response to the "question" was the creation of the Center for Marketing Research and Modeling (CMRM), which was organized in the Bureau of Business and Economic Research in the spring semester of 1978. The major objective of the CMRM was to provide research facilities and skills to scholars, graduate students, and practitioners. The idea won a first prize for educational innovation from the Southern Business Administration Association. The purpose of this paper is to describe the research facilities offered by CMRM and outline its future operations.

CREATION OF AHRP

The first project of CMRM was the Arkansas Household Research Panel (AHRP); five hundred households were recruited to serve as sources of information for business researchers. In addition, a data management system was designed to store, edit, and retrieve information gathered from the members of AHRP. When recruited, panel members provided socioeconomic and demographic information about the household and each member. Recruitment of households is a continuous process at AHRP. The functions of AHRP were (and continue to be) as follows:

To Monitor Consumer Sentiments and Purchase Intentions

The panel gathers consumer sentiments and purchase intentions of households on a quarterly basis. In addition to these data, AHRP requests Arkansans to rate their perceptions as to the quality of their lives and to report the kinds of illnesses for each household member. The information is made available to key individuals throughout the state.

To Conduct Ad Hoc Studies

The panel serves as a vehicle for practitioners and scholars to employ in gathering ad hoc kinds of marketing information. Past users of AHRP include professors, doctoral students, corporations, government, and professional marketing researchers. They have gathered information on such diverse topics as: (1) household finances, (2) contemporary political views of household members, (3) TV viewing and magazine readership habits of households, (4) household product purchase patterns, (5) outdoor leisure values, (6) household shopping patterns, (7) household purchases of electronic products, (8) studies on inflation attitudes, (9) studies of household insurance preferences, (10) studies of the elderly, (11) educational studies, and (12) numerous other studies on household characteristics, opinions, and preferences.

To Enhance Doctoral Training

The panel is also used to train doctoral students in marketing research. Graduate students are responsible for the day-to-day operations of AHRP. They oversee questionnaire construction, write cover letters, monitor panel composition, "stuff" panel packets, edit returned questionnaires, keypunch questionnaire data, and maintain customer relations. The student director of the panel prepares quarterly reports on AHRP activity and coordinates all proposed panel activities with the executive director. Thus, doctoral students are exposed to important phases in the behavioral research process.

In addition, many doctoral students use the panel to gather primary data that is then used for doctoral dissertations. Students are provided a versatile and inexpensive source of quality data. In the process of using the panel, doctoral students also gain experience in questionnaire design and data analysis.

CMRM MAIL AND TELEPHONE SURVEYS

The Center for Marketing Research and Modeling also offers survey research facilities. It provides consultation in questionnaire design, sampling design, and substantive issues in marketing. While AHRP is limited to 500 members representative of Arkansas, the survey facilities can be used to sample any population within the continental United States. Thus, ad hoc surveys can be used to sample any region of the country, and sample size can be adapted to the needs of the user.

FOCUSED GROUP INTERVIEWS

The center offers expertise in the design of focused group interviews (FGI). FGI's can be used to thoroughly explore marketing preferences, opinions and attitudes toward products, brands, stores, chains, and new products or distribution concepts. They can be designed around the *home setting* or set up in the behavioral laboratory in the College of Business Administration. In either event, FGI sessions are taped for a permanent record. Videotaping of FGI sessions is more expensive but is available at the option of the client.

The center also provides competent professionals who design and run FGI's. The user can also specify that the recording of the FGI be transcribed for use in analysis. Or, the user can request professional analysis of the transcription by the director of the FGI.

In-home FGI's tend to place session participants in an environment that is familiar and "comfortable." As a result, responses are less restrained and more valid for some kinds of research. Laboratory FGI's, on the other hand, are better controlled, since directors can view proceedings via a one-way window, and videotaping can be accomplished inconspicuously.

THE FUTURE

The Center for Marketing Research and Modeling is considering several avenues for expansion of research services in the future. Some possibilities include the following:

Panel Expansion

The household panel can be expanded through recruitment to provide more flexible coverage to users. At present, only three ad hoc studies can be handled in one packet for a given quarterly mailing. Two 500-member panels would result in increasing the number of studies to six per quarter. The expansion of panel representation in Little Rock and other large metro areas can provide the capability to focus a study on households in a particular area.

Interviewing Facility Expansion

The telephone interviewing facility can

be expanded with the purchase of a microcomputer with a hard disk drive and a telephone jack. Thus, data can be punched directly into the memory of the computer as it is received by the interviewer over the telephone and subsequently "filed" onto a hard disk. This procedure eliminates several steps in the data gathering procedure for telephone interviews. It results in data with fewer errors, less need for editing data, and lower cost. The validity of samples could also be enhanced by the purchase of "random digit dialing" software for the microcomputer.

Competition

With expanded facilities and services, CMRM will be in a position to compete with other survey research centers for research grants in such esoteric areas as "electronic research methods," "effects on shopping from electronic technology," and "Arkansans' perceptions of the University of Arkansas-Fayetteville."

BALANCING THE FEDERAL BUDGET BY CONSTITUTIONAL AMENDMENT: IS IT VIABLE?

Thomas R. McKinnon
Director, Bessie B. Moore Center
for Economic Education
University of Arkansas, Fayetteville

Continued and growing deficits in the federal budget are a concern that seems to cross party lines, and launching a successful attack on deficits may well be the most crucial political task of the '80s. The federal budget has been in deficit for 13 consecutive years and for 21 of the last 22 years. And the deficits are growing! The Congressional Budget Office now projects these deficits to exceed $150 billion each year for the next three years, and to be closer to $170 billion when off-budget spending is included.[1] These are by far the largest deficits in American economic history.

Such deficits can be a real problem for economic progress. Persistent and large deficits make lower interest rates and economic growth difficult and, when the economy is operating near capacity, contribute to inflationary pressures.

Recent deficits are somewhat different from those of earlier decades because there has been a change in the structure of the federal budget. Entitlements and the indexing of these benefits to the inflation rate has produced what may be termed structural deficits that are extremely difficult to curtail. Also, the system seems to be subject to a bias that results in excessive governmental spending and deficits. Each government program or policy yields concentrated benefits and diffused costs. Federal outlays benefit specific groups who bring pressure supporting such outlays while the costs are diffused among all taxpayers so that individual taxpayers feel little additional burden. The result is continuing growth of government expenditures.

Public opinion polls for many years have indicated the contradictory attitudes of the American people toward government taxing and spending. According to the polls, high majorities consistently favor a balanced federal budget but, at the same time, favor spending increases for specific program areas. There seems to be a feeling that deficits can be avoided by eliminating government waste.[2]

A constitutional amendment requiring an annually balanced budget is one solution of the dilemma that has recently surfaced. While there are several proposals for such an amendment, the most widely discussed is the one approved by the Senate in the fall of 1982. The primary provisions of the Senate Bill included:

1. Congress shall adopt a budget for the year in which outlays are no greater than receipts. Departures from a balanced budget would be permitted with a 3/5 vote of both houses or when a declaration of war is in effect.
2. Total receipts for a fiscal year cannot increase at a greater rate than the increase in national income the previous year.
3. The federal debt limit cannot be increased without a 3/5 vote of both houses of Congress.[3]

This proposal passed the Senate with

the necessary 2/3 majority but failed to pass the House of Representatives. However, one can be sure that it will be revived. Critics of the proposed amendment come from both liberal and conservative factions.

A major criticism of the measure is that, it will preclude counter-cyclical fiscal policy during a recession/depression (without the extraordinary vote by Congress). Since the "Great Depression" of the 1930s, a deficit in the federal budget has been considered the primary policy for stimulating the economy to end an economic downturn. Even though the use of fiscal policy has not been completely successful, there has not been a major depression in the last forty years. An annually balanced budget would actually exacerbate a business downturn. As income falls, government tax collections will fall by a greater percentage because of the graduated income tax, and government spending will be cut proportionally. The downturn will be that much deeper because even automatic stabilizers would have been eliminated.

Critics of the amendment also point out that adoption of the amendment will not necessarily result in a balanced budget. Though actual outlays could not exceed budgeted outlays, there is no guarantee that actual receipts will equal budgeted receipts. During a period of rapidly falling income, balancing the budget might be all but impossible. However, to the extent that the budget is unbalanced for this reason, countercyclical fiscal policy would be operational.

A troublesome question for liberals and conservatives alike is the problem of enforcement. The Congressional Budget Act of 1974 was adopted to bring pressure on Congress to balance the budget but has been largely ignored. There is danger that without effective sanctions, Congress would simply ignore the dictates of such an amendment thereby damaging the authority of the entire Constitution.

It seems, then, that the proposed constitutional amendment is no panacea. It is the simple solution to a complex question and, as such, promises more than it can deliver. There is no substitute for responsible action by the President and Congress.

---

[1] *Balancing the Federal Budget and Limiting Federal Spending: Constitutional and Statutory Approaches*, Congressional Budget Office, September, 1982, p. 4.

[2] Ibid., pp. 28-29.

[3] *Nation's Business*, September 1982, p. 34.

AN ECONOMIC FORECAST FOR ARKANSAS THROUGH 1983

Harry French
Associate Economist
University of Arkansas, Fayetteville

What will be the state of the Arkansas economy at year's end 1982 and what can be expected of it by year's end 1983? Because the answers to these questions are of great importance to and will impact on all Arkansans, the Bureau of Business and Economic Research has surveyed a purposive sample of Arkansans to learn what they expect of the economy. The sample of Arkansans consisted of 225 individuals—bankers, financiers, professors, economists, businessmen, and state government officials. The survey consisted of a cover letter, Exhibit 1, and a questionnaire composed of 20 specific items, Exhibit 2. Those items covered obvious facets of the Arkansas economy. Eighty-six useable responses were returned for a 38 percent response rate. That rate was considered acceptable for mailed questionnaires without follow-up.

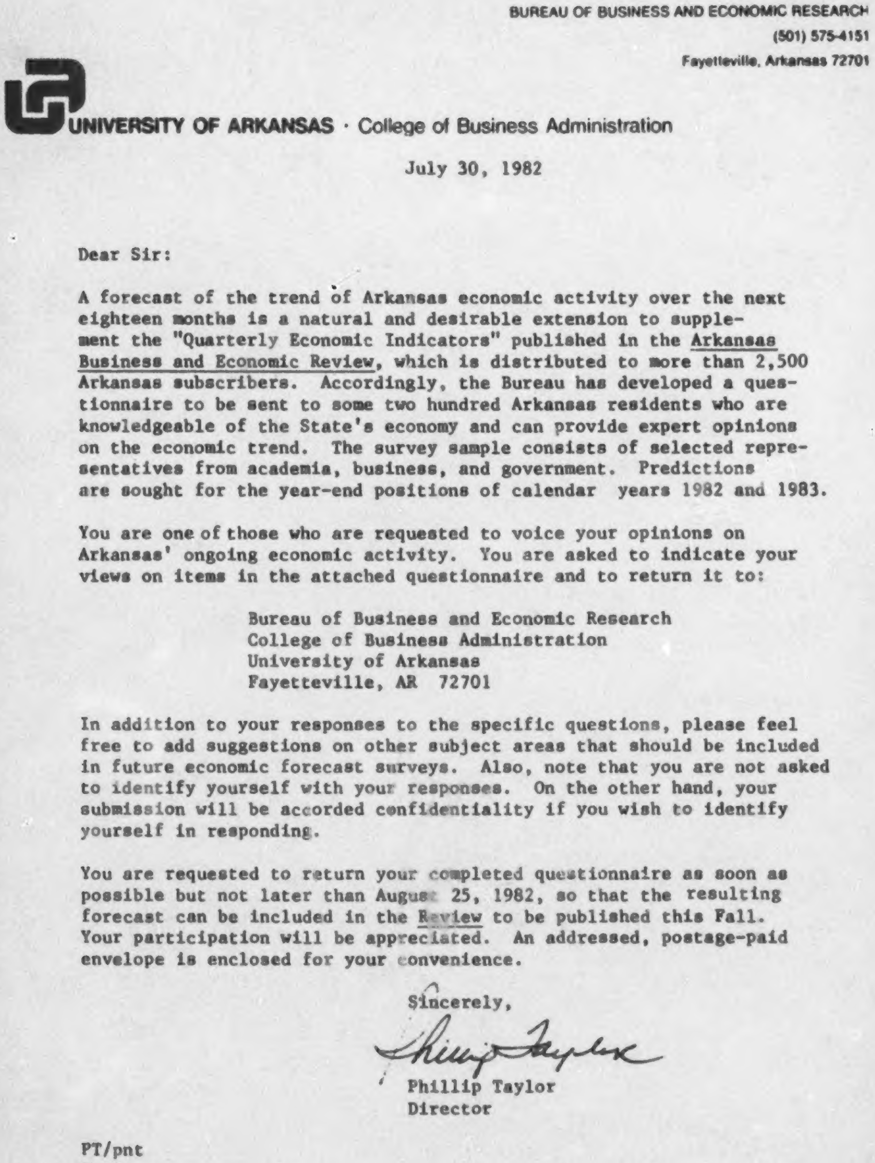
In Exhibit 2, the percentages of total responses are presented for each subitem under items 1 through 15, 17 and 20. Note that percentages under an item may not total 100 percent because of rounding. Because items 16, 18a, and 19 permit multiple responses, the indicated percentages relate to the total number of times the item was listed regardless of its proposed ranking. On item 18b, the figures represent the percentage of respondents who indicated there was at least a 50-50 chance for improvement.

Generally, the respondents indicated that they expected "more of the same" through 1982 and that they were only guardedly optimistic for improvement in the Arkansas economy in 1983. A consensus of respondents felt that unemployment, interest rates, government spending, inflation, recession, and energy costs would constitute the principal issues through 1983.

Considering the reduction of inflation, there was a consensus in 1982 for cutting government spending, reducing money supply, tightening credit, deferring tax cuts, expediting deregulation, and reducing power of big unions. For 1983, the consensus held for cuts in government spending, and deferring tax cuts but the money supply-consumer credit, deregulation and union power action were emphasized less. With respect to unemployment in 1982, consensus was expressed only for tax credits and letting the price system regulate the market. For 1983, only tax credits remained in the consensus action category with a still strong leaning toward price regulation.

Finally, the estimates for the Dow Jones Industrial averages for 1982 and 1983 were submitted before the market surge which has carried to beyond 1000.

EXHIBIT 1



BUREAU OF BUSINESS AND ECONOMIC RESEARCH
(501) 575-4151
Fayetteville, Arkansas 72701

UNIVERSITY OF ARKANSAS · College of Business Administration

July 30, 1982

Dear Sir:

A forecast of the trend of Arkansas economic activity over the next eighteen months is a natural and desirable extension to supplement the "Quarterly Economic Indicators" published in the Arkansas Business and Economic Review, which is distributed to more than 2,500 Arkansas subscribers. Accordingly, the Bureau has developed a questionnaire to be sent to some two hundred Arkansas residents who are knowledgeable of the State's economy and can provide expert opinions on the economic trend. The survey sample consists of selected representatives from academia, business, and government. Predictions are sought for the year-end positions of calendar years 1982 and 1983.

You are one of those who are requested to voice your opinions on Arkansas' ongoing economic activity. You are asked to indicate your views on items in the attached questionnaire and to return it to:

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, AR 72701

In addition to your responses to the specific questions, please feel free to add suggestions on other subject areas that should be included in future economic forecast surveys. Also, note that you are not asked to identify yourself with your responses. On the other hand, your submission will be accorded confidentiality if you wish to identify yourself in responding.

You are requested to return your completed questionnaire as soon as possible but not later than August 25, 1982, so that the resulting forecast can be included in the Review to be published this Fall. Your participation will be appreciated. An addressed, postage-paid envelope is enclosed for your convenience.

Sincerely,

Phillip Taylor
Director

PT/pnt
Enclosure

EXHIBIT 2

ECONOMIC CONDITION SURVEY

Estimated Key Economic Trends in Arkansas as of Year's End, Calendar 1982 and 1983

Please indicate the phrase which most nearly corresponds with your views. As a point of reference, unless specified otherwise, all change is to be estimated for the 1982 and 1983 year-end levels (base year-end = 1981).

1. Wage rates in real terms in Arkansas will be:

1982		1983	1982		1983
20	Down	14	22	Up	48
57	About the same	37	1	No opinion	1

2. Total consumer loans in Arkansas will be:

1982		1983	1982		1983
76	Down	53	6	Up	29
17	About the same	12	1	No opinion	6

3. Capital investment funds in Arkansas for plant and equipment will be:

1982		1983	1982		1983
72	Down	40	5	Up	33
21	About the same	24	2	No opinion	3

4. Arkansas public utility rates will be:

1982		1983	1982		1983
	Down		85	Up	87
14	About the same	12	1	No opinion	1

5. Price level for consumers in Arkansas will be:

1982		1983	1982		1983
1	Down more than 10%	1	26	Up 5% or less	21
2	Down 5 to 10%		34	Up 5 to 10%	52
6	Down 5% or less	6	1	Up more than 10%	9
16	About the same	11		No opinion	

6a. Level of new residential construction in Arkansas will be:

1982		1983	1982		1983
81	Below 1981 level	37	2	Above 1981 level	39
17	About the same	24		No opinion	

b. Arkansas' residential construction experience, relative to that of the U.S., will be:

1982		1983	1982		1983
58	Worse	41	35	About the same	44
7	Better	15			

7. Level of commercial-industrial activity in Arkansas as measured by sales will be:

1982		1983	1982		1983
49	Down	17	8	Up	47
42	About the same	34	1	No opinion	1

8. Unemployment rate in Arkansas (9.5% in April 1982) will be:

1982		1983	1982		1983
	Less than 5%	1	20	Between 8 & 9%	35
1	Between 5 and 7%	7	67	Over 9%	26
8	Between 7 and 8%	28	2	No opinion	3

9. Civilian labor force growth in Arkansas (relative to that of the U.S.) will be:

1982		1983	1982		1983
31	Down	16	12	Up	23
52	About the same	55	6	No opinion	6

10. Cost of transportation services in Arkansas will be:

1982		1983	1982		1983
5	Down	2	45	Up	68
44	About the same	21	7	No opinion	8

11. Utilization of plant capacity in Arkansas will be:

1982		1983	1982		1983
72	Down	26	2	Up	40
23	About the same	31	2	No opinion	2

12. Arkansas' total population change, in comparison with the U.S. average, will be:

1982		1983
19	Below the U.S. average	11
44	About the same as the rest of the country	44
38	Above the U.S. average	45

13. Current dollar values for cash receipts from Arkansas farm marketings, in 1980, totaled $3,063.1 million ($1,471.8 million for livestock and products and $1,591.3 for crops), and, in 1981, totaled $3,436.6 million ($1,611.5 million for livestock and products and $1,825.1 million for crops). Total cash receipts for 1982 and 1983 in current dollars will:

1982		1983
22	Decrease from the 1981 current dollar level	14
47	Remain about the same as 1981 current dollar amount	29
31	Increase from the 1981 current dollar level	57

14. Current dollar cash receipts from Arkansas farm marketing (livestock includes livestock products) with respect to their 1981 levels will (check one or more):

1982		1983
17	Show decreases in both crops and livestock	12
9	Show decreases in crops	4
8	Show decreases in livestock	9
29	Remain about the same in both	28
10	Show an increase in crops	10
3	Show an increase in livestock	4
23	Show increases in both crops and livestock	32
	Other (explain)	

List: ______________________________

____

15. In real dollars, with respect to the 1981 total of $18,461 million, total annual Personal Income for Arkansans will:

1982		1983	1982		1983
34	Fall	20	17	Rise	52
49	Remain about the same	28		No opinion	1

Major U.S. Economic and Policy Issues

16. Please rank in descending order eight (8) issues, among those listed below that you feel will exert the most influence on U.S. economic conditions. (1 = Most Significant)

1982		1983
79	Inflation	73
73	Recession	56
88	Government deficit spending	81
16	Weather effects (agriculture and energy)	15
8	Ecology and Environment (including government regulations)	15
27	Labor union activity	28
38	Foreign competition in domestic markets	38
6	Consumer awareness movements	9
12	Release of housing and community development monies	12

89	Unemployment	74
59	Energy supply and cost	64
3	International exchange rates	5
24	Balance of trade	21
89	Interest rates	79
36	New acts and laws by Congress	42
37	Campaigns and elections	14
26	International commitments and developments	30
8	Tax revolt by citizens	10
	Other	

List: ______________________________

17. In our society, the single most serious economic problem will be:

1982		1983
21	Unemployment	14
22	Inflation	16
28	Declining productivity and real growth	20
	Balance of trade deficits	
28	Government spending	49
	Other	

List: ______________________________

18a. With the recent U.S. experience as regards inflation and unemployment, what approaches are recommended toward reducing inflation? (Rank in descending order from 1 = Most Significant).

1982		1983
86	Cut government spending in social programs	81
74	Cut government spending on defense	72
56	Reduce the money supply and tighten consumer credit	45
42	Increase excise taxes	38
52	Defer 1983 income tax cuts	53
38	Institute price and wage controls	36
51	Expedite deregulation of commerce	48
44	Relax environmental controls	41
36	Increase import restrictions and higher import duties	31
51	Reduce the power of big labor unions	49
9	Other	10

List: ______________________________

b. What is the percent chance that in the domestic economy the upturn will commence by year's end 1982? 23%, by year's end 1983? 60%

19. **With the recent U.S. experience as regards inflation and unemployment, what are the recommended approaches to reduce unemployment? (If more than one choice, rank in descending order from 1 = Best Approach.)**

1982		1983
21	Reinstitute the military draft	23
12	Create more government "public service" jobs	13
14	Accelerate public works spending	14
55	Institute tax credits to stimulate investment	55
50	Let the price system regulate the market	48
20	Sponsor job training programs, including OJT	20
21	Tighten laws for labor unions	20
41	Eliminate minimum wage legislation on teenagers	33
12	Increase defense spending	10
12	Decrease defense spending	8
5	Other	5

List: ______________________________

____

20. The Dow Jones Industrial Average (approximately 800 in late June 1982) will be:

1982		1983	1982		1983
1	Less than 700		14	Between 850 and 900	27
5	Between 700 and 750	2	4	Between 900 and 950	17
25	Between 750 and 800	2	1	More than 950	25
42	Between 800 and 850	19	7	No opinion	7

SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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ARKANSAS ECONOMY: Q-II, 1982

Phillip H. Taylor
Director, Bureau of Business and Economic Research
University of Arkansas, Fayetteville

The employment picture continued to darken through the second quarter with declines across the board - decreases in the manufacturing and non-manufacturing sectors of wage and salary employment as well as in agricultural employment. Except for the usual seasonal factors associated with agricultural employment and even though economic recovery of a modest nature later appears to be in progress in the third quarter, the rise in the number of unemployed is expected to continue throughout almost the entirety of 1982.

Revisions in personal income data indicate the growth earlier reported for the first quarter was, in fact, a 1.2 percent decline. However, early estimates now available for the second quarter again indicate a positive growth, this time by 3.4 percent. Should the data remain relatively fixed, the indication is that the real income of Arkansans improved substantially in the second quarter.

Other economic indicators pointing toward improvement in economic conditions are value added by manufacture; cash receipts from farm marketings; savings and loan activity, both with respect to new loans and net new savings; internal Arkansas River traffic; and residential construction permits. However, even with the improvements registered, these serials generally remain at relatively low levels so that substantial improvement must still occur prior to a return to prerecession levels of economic activity.

The decline in interest rates, both short and long term, have added to the optimism concerning economic recovery. Although, as of yet, the consumer has seemed to show little enthusiasm for a return to purchasing on a larger scale. Until that happens, the level of economic activity will likely remain low and the recovery, sluggish.

In general, it appears that the expansion in the economy will continue, but at a moderate rate, into the Spring. Assuming interest rates do not reverse their recent behavior in the near term, a more aggressive national economic recovery should begin during the first half of 1983. But even then, it may take somewhat longer for that recovery to have its full impact on the Arkansas economy.

EMPLOYMENT

Base Year to Date and Quarterly Changes in Total Employment, Arkansas and United States

Seasonally adjusted, percent. Base Year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II
Arkansas	+ 37.6	+ 2.7	+ 1.7	- 1.3	- 1.7
United States	+ 34.1	- 0.1	- 0.6	-0.5	+ 0.2

Employment by Major Industry Group in Arkansas, and Unemployment Rate, Arkansas and United States

Seasonally adjusted, units

TIME PERIOD	EMPLOYMENT				UNEMPLOYMENT RATE	
	Wage and Salary		Agricultural	Total	Arkansas[1]	United States[1]
	Manufacturing	Nonmanufacturing				
1975	175,500	444,500	61,000	776,700	9.5	8.5
1976	187,300	445,100	65,600	794,000	7.1	7.7
1977	208,900	483,400	62,800	837,700	6.6	7.1
1978	216,500	507,350	61,250	868,400	6.3	6.1
1979	217,750	526,700	65,800	904,000	6.2	5.8
1980	210,050	540,400	65,100	896,200	7.6	7.1
1981	212,100	536,150	64,100	910,150	9.1	7.6
1982, Q-I	199,550	523,820	64,600	922,470	8.8	8.8
Q-II	196,450	521,650	63,525	906,620	9.5	9.1

[1] Actual Rate, Percentage.

PERSONAL INCOME

Base Year to Date and Quarterly Changes in Personal Income, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II
Arkansas	+ 357.3	+ 3.4^{R}	+ 0.8^{R}	- 1.2^{R}	+ 3.4
United States	+ 303.8	+ 3.2^{R}	+ 1.4^{R}	+ 0.6^{R}	+ 1.7

Personal Income in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981^{R}	1982
Quarter								
Jan-Mar	2,070	2,508	2,837	3,118	3,698	4,002	4,474	4,685^{R}
Apr-Jun	2,373	2,667	2,948	3,208	3,681	3,975	4,548	4,843
Jul-Sep	2,391	2,626	2,984	3,315	3,805	4,160	4,704	
Oct-Dec	2,368	2,676	3,070	3,406	3,929	4,265	4,740	
Annual	9,202	10,477	11,839	13,047	15,113	16,402	18,466	

R - Revised on the basis of BEA computer data, October 1982.

VALUE ADDED BY MANUFACTURE

Base Year to Date and Quarterly Changes in Manufacturing, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-1 thru 1982 Q-II
Arkansas	+ 284.0	+ 1.1	- 4.3	+ 2.9	+ 0.3
United States	+ 39.2	- 0.7	- 3.5	- 3.1	- 1.8

Value Added by Manufacture in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	981.0	1,099.3	1,158.2	1,326.7	1,416.1	1,435.8	1,534.0	1,500.7	1,400.4
Apr-Jun	975.4	1,103.2	1,226.4	1,377.1	1,407.8	1,328.3	1,506.7	1,505.2	1,482.2
Jul-Sep	1,009.3	1,134.7	1,234.1	1,344.0	1,369.4	1,325.2	1,523.6		
Oct-Dec	1,074.1	1,103.1	1,248. 6	1,325.7	1,362.1	1,374.7	1,458.0		
Annual	4,039.8	4,440.3	4,867.3	5,373.5	5,555.4	5,464.0	6,122.3		

CASH RECEIPTS FROM FARM MARKETINGS

Base Year to Date and Quarterly Changes in Cash Receipts, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II
Arkansas	+ 329.7	+ 11.2^{R}	- 31.6^{R}	+ 21.6^{R}	+ 10.9
United States	NA	- 0.3	- 2.2	+ 1.4	NA

Cash Receipts from Farm Marketings in Arkansas

Seasonally adjusted, thousands of dollars

Quarter	1975	1976	1977	1978^{R}	1979^{R}	1980^{R}	1981^{R}	1982	Not seasonally adjusted 1982
Jan-Mar	529,492	565,575	686,105	915,305	931,511	961,705	823,428	$897,693^{R}$	$706,020^{R}$
Apr-Jun	584,346	740,457	703,457	705,441	719,506	658,942	909,757	995,460	719,665
Jul-Sep	609,324	621,624	578,357	760,304	762,307	879,485	1,011,547		
Oct-Dec	508,651	497,214	500,169	584,144	663,304	570,684	692,029		
Annual	2,231,831	2,425,367	2,468,088	2,965,194	3,081,628	3,070,816	3,436,761		

NA—Not Available

R - Revised based on USDA report of August 1, 1982.

ACTIVITY OF ARKANSAS SAVINGS AND LOAN ASSOCIATIONS

Base Year to Date and Quarterly Changes in Activity of Arkansas S & L Associations

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1092 Q-I thru 1982 Q-II
Total New Loans	+ 76.4	- 24.3	+ 2.3	+ 26.4	+ 44.1
Net New Savings	- 29.2	+ 6.6	+ 289.9	- 5.4	+ 4.1

Economic Activity of Arkansas Savings and Loan Associations

Not seasonally adjusted, Thousands of dollars

TIME PERIOD	TOTAL NEW LOANS		NET NEW SAVINGS	
	Current $	1967 $	Current $	1967 $
1975	413,366	255,678	309,304	192,119
1976	606,400	355,280	393,300	231,050
1977	815,800	448,590	405,000	223,492
1978	729,300	373,700	416,900	213,610
1979	625,900	290,560	436,830	204,525
1980	504,700	204,275	287,600	115,580
1981	360,800	132,970	20,000	7,240
1982 Q-I	102,600	36,250	36,900	13,040
1982 Q-II	150,100	52,250	39,000	13,570

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Base Year to Date and Quarterly Changes in Total and Internal Tonnages

Not seasonally adjusted, percent, Base = Ave. Qtr. 1971

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II
Total	+ 105.1	+ 10.2	- 9.1	+ 6.1	- 25.4
Internal	- 43.6	+ 7.4	- 20.9	- 52.6	+ 84.2

Freight Traffic
Arkansas River Commerce

Not seasonally adjusted, Thousands of short tons

TIME	TRAFFIC TONNAGES*			
PERIOD	INBOUND	OUTBOUND	INTERNAL	TOTAL
1975	1,440	870	2,465	5,204
1976	1,988	1,663	3,033	7,078
1977	2,841	2,339	3,463	9,138
1978	2,595	3,899	3,170	10,216
1979	2,026	3,456	2,932	8,926
1980	1,611	4,643	2,408	9,133
1981	1,564	5,684	1,741	9,446
1982 Q-I	372	1,687	186	2,505
1982 Q-II	390	1,002	342	1,870

*Total tonnage includes "through traffic"—shipments which originate and terminate outside the Arkansas River Commerce Area.

RESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Residential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II
Arkansas	+ 211.11	- 15.1	- 7.6	- 23.6	+ 57.5
United States	+ 209.5	- 15.1	- 20.8	- 12.9	+ 48.8

Residential Construction Contracts in Arkansas

Seasonally adjusted, thousands of dollars

Quarter	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Jan-Mar	84,388	116,379	160,861	220,739	205,119	144,050	176,180	115,590	106,500
Apr-Jun	85,740	117,164	173,558	236,915	153,917	137,600	159,750	153,850	167,700
Jul-Sep	98,557	122,732	182,210	227,633	193,364	177,450	138,360		
Oct-Dec	104,656	134,927	217,222	236,718	154,130	185,450	158,510		
Annual	373,441	491,202	733,851	922,005	706,530	664,550	632,800		

NONRESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Nonresidential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-I	1981 Q-II thru 1981 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II
Arkansas	+ 51.9	- 18.3	+ 33.8	+ 21.1	- 43.2
United States	+ 188.9	+ 0.5	- 11.6	- 12.6	+ 19.5

Nonresidential Construction Contracts In Arkansas

Not seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982
Quarter								
Jan-Mar	79,225	43,591	57,486	72,851	88,988	72,300	90,500	96,300
Apr-Jun	67,424	93,906	63,726	60,479	109,976	91,200	72,700	54,700
Jul-Sep	45,566	67,913	67,632	90,471	70,296	91,900	59,400	
Oct-Dec	89,446	79,004	76,866	69,041	112,549	99,700	79,500	
Annual	281,661	284,414	265,710	292,842	381,809	355,100	302,100	

LABOR FORCE ESTIMATES
August 1982, not seasonally adjusted

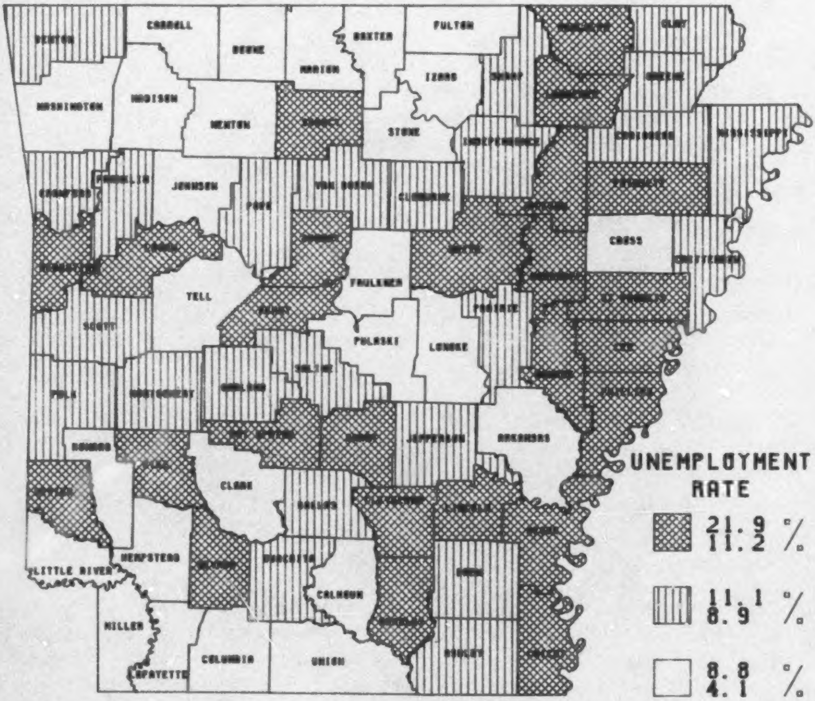
State and SMSA's	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	111,887,000	9.6	101,770,000
STATE OF ARKANSAS	1,031,900	9.8	930,700
Fayetteville-Springdale SMSA (Benton & Washington Counties)	80,500	7.8	74,250
Fort Smith SMSA (Crawford & Sebastian Counties in Arkansas and LeFlore & Sequoyah Counties in Oklahoma)	86,050	10.6	76,950
Little Rock-North Little Rock SMSA (Pulaski & Saline Counties)	199,000	8.1	182,800
Pine Bluff SMSA (Jefferson County)	40,400	11.0	35,950

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	12,875	7.0	11,975	Lee	5,100	15.2	4,325
Ashley	11,550	10.4	10,350	Lincoln	4,500	13.9	3,875
Baxter	9,775	6.9	9,100	Little River	5,800	8.5	5,125
Benton	35,875	9.1	32,600	Logan	7,800	11.2	6,925
Boone	11,550	6.3	10,825	Lonoke	16,650	7.8	15,350
Bradley	4,950	12.1	4,350	Madison	6,050	6.6	5,650
Calhoun	2,500	8.0	2,300	Marion	6,150	4.1	5,900
Carroll	8,800	4.3	8,425	Miller	15,100	8.3	13,850
Chicot	7,625	12.8	6,650	Mississippi	25,850	10.1	23,250
Clark	10,100	8.4	9,250	Monroe	5,675	15.9	4,775
Clay	9,450	9.5	8,550	Montgomery	3,250	10.8	2,900
Cleburne	6,525	11.1	5,800	Nevada	4,150	14.5	3,550
Cleveland	2,100	17.9	1,725	Newton	3,025	8.3	2,775
Columbia	13,475	6.3	12,625	Ouachita	12,850	10.3	11,525
Conway	9,150	21.9	7,150	Perry	3,125	15.2	2,650
Craighead	30,750	10.0	27,675	Phillips	13,400	11.6	11,850
Crawford	16,050	10.3	14,400	Pike	4,375	12.0	3,850
Crittenden	23,550	9.8	21,250	Poinsett	11,300	16.4	9,450
Cross	9,125	8.8	8,325	Polk	6,375	9.4	5,775
Dallas	4,100	9.8	3,700	Pope	19,400	10.7	17,325
Desha	8,075	17.0	6,700	Prairie	3,875	11.0	3,450
Drew	8,075	10.8	7,200	Pulaski	171,850	7.9	158,225
Faulkner	21,550	8.8	19,650	Randolph	6,975	13.6	6,025
Franklin	6,800	10.7	6,075	St. Francis	13,150	14.4	11,250
Fulton	2,875	8.7	2,625	Saline	27,150	9.5	24,575
Garland	30,200	10.6	27,000	Scott	3,425	9.5	3,100
Grant	4,225	11.8	3,725	Searcy	2,950	11.9	2,600
Greene	14,175	10.8	12,650	Sebastian	41,800	11.4	37,050
Hempstead	11,625	6.9	10,825	Sevier	6,150	11.8	5,425
Hot Spring	10,275	17.8	8,450	Sharp	4,500	11.1	4,000
Howard	8,025	5.3	7,600	Stone	3,575	7.0	3,325
Independence	16,925	10.2	15,200	Union	24,475	6.8	22,800
Izard	4,100	7.9	3,775	Van Buren	[illegible],450	10.1	4,000
Jackson	9,600	15.4	8,125	Washington	44,625	6.7	41,650
Jefferson	40,400	11.0	35,950	White	23,800	13.9	20,325
Johnson	8,000	8.4	7,325	Woodruff	4,525	12.2	3,975
Lafayette	3,775	8.6	3,450	Yell	8,175	7.6	7,550
Lawrence	8,350	12.0	7,350				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
AUGUST 1982

IN AUGUST, ARKANSAS' CIVILIAN LABOR FORCE INCREASED BY 5,300 TO TOTAL 1,031,900. TOTAL EMPLOYMENT INCREASED 1,900 TO TOTAL 930,700. UNEMPLOYMENT ROSE 3,400 TO TOTAL 101,200. OF THE 75 COUNTIES, MARION HAD THE LOWEST UNEMPLOYMENT RATE AT 4.1 PERCENT AND CONWAY, THE HIGHEST AT 21.9 PERCENT. MOREOVER, THE UNEMPLOYMENT RATES IN 44 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE SMSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 7.8 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 11.0 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH SMSAS WERE 8.1 AND 10.6 PERCENT, RESPECTIVELY.



UNIVERSITY OF ARKANSAS
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REVIEW EDITORIAL POLICY STATEMENT

In an effort to ensure that the articles appearing in the *Review* meet standards consistent with the goals of the College of Business Administration and of the University of Arkansas, an Editorial Advisory Board has been created to referee manuscripts submitted for publication. The current members of the Board are:

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1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas; and
4. Business and economic theory.

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Arkansas Business and Economic Review

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Arkansas Business and Economic Review

B.A. NUGENT
Chancellor, University of Arkansas, Fayetteville
JOHN P. OWEN
Dean, College of Business Administration
PHILLIP H. TAYLOR
Director, Bureau of Business and Economic Research
JOSEPH A. ZIEGLER
Senior Research Associate

HARRY FRENCH
Associate Economist
MARY S. HIRSCH
Instructor/Systems Analyst
MARGARET GAYLE
Research Assistant
LINDEL TOWNSLEY, JR.
Research Assistant

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THE ROLE OF OLDER AMERICANS IN ARKANSAS' CHANGING POPULATION PATTERNS

Charles R. Britton
Professor of Economics
University of Arkansas, Fayetteville

Thomas O. Graff
Associate Professor of Geography
University of Arkansas, Fayetteville

INTRODUCTION

Arkansas, the smallest in area of those continental states wholly located west of the Mississippi River, possesses one of the most rural populations in the United States. In most of the states, cities dominate the settlement pattern; but in contrast the Arkansas urban population first surpassed its rural population in the 1980 Census. Even now as Arkansas cities are rapidly growing, the state retains its rural character.

Though it was admitted to the Union in 1836, Arkansas has long had one of the smaller state populations in the United States. This relatively small population base is not a result of a particularly hostile environment; rather it reflects the lack of a truly large metropolitan center. Little Rock, the state's largest city, now has only 158,461 residents and no other city has even 75,000 persons. Scattered farmsteads and small towns are far more typical of the Arkansas settlement pattern than are big cities and endless suburbs.

During most of the twentieth century, U.S. metropolitan centers have recorded dramatic growth as rural populations have stagnated. Arkansas recorded the fourth slowest population growth rate in the nation during the first half of this century. Now, Arkansas is perceived as possessing a tranquil rural landscape lacking much pollution. The state's unhurried lifestyle and low taxes accentuate its attributes. In the last decade, Arkansas has emerged as one of the most rapidly growing states in the country, and older Americans have become a major element in the Arkansas growth.

HISTORICAL U.S. MIGRATION TRENDS

Three basic demographic processes—births, deaths, and migration—control population change. Within the United States, as variations in regional birth and death rates have been disappearing, migration has assumed major control of differential rates of regional population changes. During the twentieth century, the rural-to-urban migration has been the dominant United States population movement. In fact, during this century, almost all United States population growth has occurred on the 2 percent of land classified as urban while rural population has remained stagnant. For this reason, the ongoing rural-to-urban migration has produced explosive population growth in states with major urban centers, and states lacking major urban agglomerations have experienced long periods of population stagnation. Following World War II, suburbs rather than the metropolitan centers themselves became the focus of growth in most metropolitan areas.

Before 1960, elderly migration patterns largely paralleled U.S. migration trends. In the 1950's, the elderly generally left metropolitan centers for the suburbs. During the 1960's, the migration patterns of older Americans started to differ from the general migration patterns as many elderly started to select environmentally attractive retirement destinations. The change in retirement destination reflected the changes in relative economic position. Before 1950, most older persons were comparatively poor and they showed great reluctance to migrate long distances. As a result, areas with great concentrations of the elderly lacked the jobs to retain their young adults. The top 5 states in 1950 in percentage of population aged 65 and older were New Hampshire, Vermont, Iowa, Missouri, and Maine. Of course, that did not reflect an attraction for the elderly so much as a lack of retention of the youth of the area.[1] Before 1960, most American retirees had barely surmounted the personal economic effects of the Depression and were unable to select attractive retirement locations. Following 1960, the combination of improved economic conditions, more generous Social Security benefits, and expanded pensions permitted increased numbers of Americans to select desirable retirement sites.

By 1970, significant numbers of older Americans had obtained the necessary resources to select amenity retirement locations. In 1970, the top 5 states in percentage of aged populations were Florida, Nebraska, Iowa, Arkansas, and South Dakota. Obviously, the list reflects both elderly in-migration and youthful out-migration.[2]

Twentieth century U.S. population trends reflect the changing stimuli of American migration. Table 1 shows the consistency of the U.S. population growth and the dominance of the urban growth. That urban growth is largely an economic migration for increased incomes. During the last decade, the urban growth slowed and rural population increased appreciably. Twentieth century Arkansas trends differ markedly from U.S. trends since in Arkansas the rural population is a much larger component of the total population. Though the state's population has been experiencing consistent growth, the large rural declines produced overall population declines between 1940 and 1960. During the 1970's, both the rural and urban populations grew significantly.

Older Americans have been at the forefront of the non-metropolitan migration. It is not surprising that older Americans would be the first to select aesthetically pleasing yet economically unattractive non-metropolitan destinations.[3] After all, most older Americans have completed their years of employment and their retirement incomes are independent of their location of residence.

TABLE 1
Urban and Rural Populations in the United States, 1790-1980

Year	Urban Pop.	Rural Pop.	Total Population	Urban as % of Total Pop.
1790	201	3,728	3,929	5.12%
1800	322	4,986	5,308	6.07
1810	526	6,714	7,240	7.27
1820	693	8,945	9,638	7.19
1830	1,127	11,739	12,866	8.75
1840	1,845	15,224	17,069	10.81
1850	3,544	19,648	23,192	15.28
1860	6,216	25,227	31,443	19.77
1870	9,902	28,656	38,558	25.68
1880	14,310	36,026	50,156	28.17
1890	22,107	40,841	62,948	35.12
1900	30,120	45,835	75,955	39.66
1910	41,999	49,973	91,972	45.66
1920	54,158	51,553	105,711	51.23
1930	68,955	53,820	122,775	56.16
1940	74,423	57,246	131,669	56.52
1950*	96,468	54,230	150,697	64.01
1960	125,269	54,054	179,323	69.86
1970	149,325	53,887	203,212	73.48
1980	166,965	59,539	226,504	73.71

SOURCE: U.S. Department of Commerce, Bureau of Census

*Urban - Rural definition changed for 1950 census

Despite their increasing affluence, older Americans are the least mobile cohort of the United States population. The 5 year mobility rates of the 60 and older cohort remain below 25% compared to the 70% mobility rate of the 15-24 cohorts. These mobility rates have remained remarkably consistent since World War II. Despite their continued low mobility rates, the elderly should have increased impacts in the future. The size of the 65 and older cohort has already expanded eight fold in the twentieth century and will continue to expand during this decade. As the past participants of the rural-to-urban migration reach retirement age, the migration flow to environmentally attractive areas will continue and expand.

MIGRATION AND QUALITY OF LIFE

In the past, most migrations have primarily been in response to economic stimuli. Younger adults, usually at the career initiation stage of life, were and are the most mobile segment of the population, and, therefore, generally respond to economic stimuli. As a result most migrations have been from areas of lesser economic opportunity to areas of greater economic opportunity. Positive migrations tend to occur as a result of certain factors which in general cause individuals to migrate from one area to another, and can be summarized as follows:

1. the greater the income (or wage) levels in the latter area,
2. the greater the number of available jobs,
3. the smaller the distance,
4. the smaller the population density, and
5. the greater the cultural similarity of that area to the state of birth.

It is also known that through time:

1. Per capita income is becoming more important.
2. Distance is becoming less important.
3. Job opportunities are remaining about the same.
4. Population density is becoming less important.
5. Regional affinity is becoming less important.[4]

Thus, the economic factor is becoming more important in migration decisions; yet the cause of the newly emerging migration pattern of the elderly would appear to be non-economic in nature. After all, the elderly are not seeking employment opportunities in locations with high per capita incomes. In fact, just the opposite appears to be happening. Migration studies do indicate that individuals move to maximize utility through time; so the conclusion must be that Arkansas represents a relatively high quality of life. Table 2 presents measures of different quality of life variables, and as can be seen, Arkansas consistently ranks near the bottom. It would

TABLE 2
Socio-Economic-Political-Environmental, Overall Quality of Life Rankings and Income Per Capita for Arkansas: Different Dates

Measure	Ranking
1973	
Individual status (a)	47
Living Conditions (a)	34
Economic Status (a)	49
Education (a)	46
Overall Quality of Life (a)	44
1967	
Quality of Life (b)	47
1972	
Index of Quality of Life (c)	48
1981	
Index of Quality of Life (c)	44
Per Capita Income 1969 (d)	49
1979 (d)	49

Sources:
(a) Liu, Ben-Chieh, *The Quality of Life in the United States* (Kansas City, Mo.; Midwest Research Institute Report, November, 1973).
(b) Wilson, John O., *The Quality of Life in America* (Kansas City, Mo.; Midwest Research Institute Report, 1967).
(c) Lifestyle Publishing, Inc., *Lifestyle Magazine* (November 1972).
(d) U.S. Department of Commerce, *Statistical Abstract of the U.S.*

seem that Arkansas does not represent an area where one would go to achieve self-fulfillment since its ranking indicates that it represents an area where the quality of life is relatively the lowest in the U.S. Of further interest is the evidence of Table 2 which indicates that not only does Arkansas possess a low overall quality of life but also it has been that way for a long period of time and, furthermore, is not improving much. The authors of this paper find these conclusions somewhat paradoxical because if Arkansas represents such a low overall quality of life then why is elderly in-migration occurring?[5]

RECENT ELDERLY MIGRATION

The importance of the elderly cohort in the United States population is increasing rapidly. As a percentage, the over 65 cohort has expanded from 3.7 to 11.7 percent during this century. Present birth, death, and international migration rates project that this segment will expand more rapidly in the near future.

Detailed analysis of United States age-specific migration patterns is severely limited by data availability since the United States Census has published no age-specific migration data for statistical units as small as counties. For this paper, net migration data for counties published by the U.S. Department of Agriculture were employed. That data set incorporates census data and standardized survival rates to calculate age-specific net migration data for each county.[6] Obviously, net migration data do not permit analysis of migration streams though they do readily identify origins and destinations of elderly migrants. The data used in this study are based upon the 1950, '60, '70, and '80 censuses. These data were employed to identify areas of significant elderly population changes.

Certain generalizations can be made concerning the 1950-60 period. First, the central city counties of major metropolitan areas were the areas of greatest out-migration. To a lesser degree scattered counties in the Northeast also experienced elderly out-migration. Scattered, impoverished rural areas—the Mississippi Delta, the Alabama Black Belt, and Appalachia—recorded significant out-migration. Major areas of elderly in-migration include outer suburban counties in the Northeast, central city counties outside of the Northeast, and the states of Florida, Arizona, and California.

During the 1960-70 decade, the major source areas for out-migration were located in the Northeast, especially the older metropolitan center counties. Outer suburban counties in the Northeast and the Sunbelt states of Florida, Arizona, and California were still recording dramatic elderly in-migration. However, the Ozarks of the South Central states, the Smokies of the Southeast, and northern counties in the Upper Great Lakes states were also reporting significant elderly migration.[7] The elderly have played a major role in reversing the trend in areas of long-term population stagnation and making them into growth areas.

SUMMARY OF ELDERLY MIGRATION PATTERNS

These emerging migration patterns suggest that elderly Americans respond to a set of migrational stimuli different from those of the general population. Older Americans appeared to desire nonmetropolitan retirement locations. The long-term net migration of older Americans from major metropolitan areas is a result of this desire. In addition, older Americans also apparently desire recreational amenities, especially water-based opportunities since most counties receiving large percentages of elderly in-migrants possess recreational waterfronts. Older Americans also prefer to migrate short distances as evidenced by the fact that traditional suburban migration and the emerging retirement centers in the Ozarks, Smokies, and Upper Great Lakes states are only a single day's drive from major metropolises. Finally, older Americans prefer but do not demand warm-winter retirement locations. The general Southern destinations of the elderly probably reflect this preference, but certainly the significant flows to the Upper Great Lakes states show that many elderly are willing to sacrifice warm winter location.

In a general sense, emerging elderly migration patterns reflect long-term American vacation patterns. Vacation destinations such as the Ozarks, Upper Great Lakes states, Florida, and others are becoming major retirement centers. The major exception is Colorado, which may change in the near future. It may be that many older Americans are converting vacation cottages into retirement homes.

ARKANSAS POPULATION TRENDS

Arkansas population trends have not exactly parallelled United States population tendencies. From 1900 through 1940 Arkansas experienced relatively slow population growth. Between 1940 and 1960 the out-migration from Arkansas rural areas increased so that the state suffered significant population declines. In fact, during that period Arkansas suffered the greatest statewide population losses in the nation. Between 1940 and 1960, most age groups reported a net out-migration from Arkansas. This out-migration was most pronounced in the younger adult age groups. More than half of the Arkansas population aged in their twenties in 1950 had left the state by 1960. This dramatic out-migration was reported in both the black and white racial groups.

These dramatic Arkansas population declines occurred throughout the state since only six of the state's 75 counties gained population between 1950 and 1960 as can be seen in Exhibit A. Each of the growth counties was strongly influenced by a major urban center (Little Rock, Pine Bluff, Fayetteville-Springdale, Fort Smith, and Memphis). Almost all rural areas lost people and some of the counties lost as much as 40 percent of their population during this period. During the 1960's, Arkansas population declines ended and the state started to gain population again. Since 1970 Arkansas has become one of the most rapidly growing states in the nation.

The turmoil and questioning of traditional values by Americans in the 1960's has apparently produced a less materialistic society. Traditionally Americans have measured well-being in monetary terms. Recently, many Americans have recognized non-monetary rewards could prove as important as money. Some Americans have been willing to forsake the economic rewards of city living for environmental amenities such as mild winters, unhurried lifestyles, recreational opportunities, and pleasant surroundings. Some of the liabilities which produced the earlier Arkansas population declines have become attributes and are now attracting new residents.

In particular, retired Americans have become a major component of the recent Arkansas population growth. In 1950, Arkansas ranked 29th in percentage of population aged 65 and older while, by 1970, the state was ranked fourth and is now second. Over the same period the percentage of the state's population aged 65 and older has doubled from 7 to 14 percent. The bountiful supply of recreational facilities, pleasant rural environment, moderate climate, and low tax rates, to name a few, have contributed to make Arkansas a very attractive retirement site still reasonably close to many of the nation's metropolitan centers.

As can be seen in Exhibit B, the large influx of retirees has been almost completely restricted to the northern and western portions of Arkansas. These areas contain most of the state's hills and recreation facilities. A variety of retirement settings are available to retirees in the Ozarks and Ouachitas. Though most retirees select rural sites for retirement they also try to maintain some access to a major urban center. As is evident, most older persons select residential locations less than an hour's driving time from a major city. For those who desire it, far more isolated sites are available.

SUMMARY OF ARKANSAS POPULATION PATTERNS

Within Arkansas, retirees have become a major new population factor. Northern Arkansas, which includes many reservoirs and the scenic Ozarks, is a single day's driving distance from several major metropolises, so that it is rapidly becoming a major retirement center. The elderly in-migration into Arkansas exceeded 25,000 in the 1960's compared to an out-migration of over 9,000 in the 1950's.

The emerging population structure of the major Northeast metropolises suggests that the elderly influx to Arkansas is just starting. Changes in the nation's demographic structure will expand the extent of this migration; and, whereas Arkansas may lack some of the climatic amenities of Florida and Arizona, it does possess the amenities to become a regional retirement center. As a result, some non-metropolitan areas are revising decades of depopulation and are becoming once again growth areas.

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[1] Thomas O. Graff and Robert F. Wiseman, "Changing Concentrations of Older Americans." *The Geographic Review*, (October, 1978), pp. 379-393.

[2] Ibid.

[3] Curtis C. Roseman, *Changing Migration Patterns Within the United States*, Resource Papers for College Geography Number 77-2, Washington, D.C.: Association of American Geographers (1977).

[4] Lowell E. Gallaway and Richard K. Vedder, "Mobility of Native Americans." *Journal of Economic History* (September 1971) pp. 613-649.

[5] Joseph A. Ziegler, and Charles R. Britton. "A Comparative Analysis of Variations in Measuring the Quality of Life." *Social Science Quarterly*, (June 1981) pp. 303-312.

[6] Gladys K. Bowles, Calvin L. Beale, and Everett S. Lee, *Net Migration of the Population 1960-70 by Age, Sex and Color.* Washington, D.C.: Economic Research Service, U.S. Department of Agriculture (1975) and Gladys K. Bowles and James D. Tarver. *Net Migration of the Population, 1950-60 by Age, Sex, and Color,* Washington, D.C.: U.S. Government Printing Office. (1965).

[7] Thomas O. Graff and Charles R. Britton. "Elderly Migration Patterns: A Reversal of Long-Term Trends." *Midsouth Journal of Economics* (December 1981) pp. 19-26.

THE TAX EQUITY AND FISCAL RESPONSIBILITY ACT OF 1982: SELECTED BUSINESS PROVISIONS

Macil C. Wilkie
Associate Professor of Accounting
Northeast Louisiana University

Cynthia R. Bettinger
Assistant Professor of Accounting
Northeast Louisiana University

In August 1982, in an attempt to reduce the estimated record future federal deficit, Congress passed the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), a measure designed to raise almost $100 billion in future revenues for the federal government. Certain provisions of this act are of significance to almost all business organizations and are discussed in the following paragraphs.

INVESTMENT TAX CREDIT

One of the more important business changes is related to the investment credit. The investment credit is a direct reduction in the tax liability of a company and ranges from six to ten percent of the cost of qualifying new or used productive assets other than buildings. The investment credit is taken in the year of acquisition and, in the past, has not affected the depreciation to be taken on the acquired asset. For example, if a business acquired a $10,000 new machine to be used in its operations, a $1,000 investment tax credit could be taken and the full $10,000 cost of the asset could be depreciated over the useful life of the asset. TEFRA has changed that procedure. Starting in 1983, one-half of the investment tax credit taken on any asset must be subtracted from the cost of the asset in computing the depreciation allowed for tax purposes. Using the data from the example above, after recognizing the $1,000 investment tax credit, only $10,000 less $500 ($9,500) of the cost of the machine could be depreciated for tax purposes. Thus, $500 would be lost as far as future depreciation is concerned.

The investment tax credit is still more desirable than the lost depreciation, however, since the credit represents a dollar for dollar reduction in the tax that would otherwise be due. The depreciation deduction would result in a tax savings of less than 100% of the tax, depending on the highest marginal tax rate to which the company's income is subjected. The Act does allow taxpayers to elect a reduction of two percent in the appropriate investment credit rate for most property in lieu of the reduction in depreciable basis.[1]

ESTIMATED TAX PAYMENTS

A second change has to do with corporate estimated income taxes. Under prior law, the estimated tax payments by a corporation had to equal at least 80 percent of the actual tax due for the year if a penalty on underpayment was to be avoided. However, there were some exceptions to this rule. The penalty would be waived if the estimated payments were:

1. Equal to or more than the previous year's tax,
2. Equal to or more than the tax that would have been owed on the previous year's income using current tax rates, or

3. Equal to or more than 80 percent of the tax that would have been owed on the current year's taxable income as projected by annualizing the current year's taxable income through the estimated tax payment date.

Beginning in 1983, the new law requires that a corporation make estimated tax payments of at least 90 percent of its actual tax liability for the year, with basically the same exceptions available to avoid any underpayment penalty.[2] Corporations should watch carefully their estimated payments in 1983, as the underpayment penalty is a nondeductible interest charge on the amount of the underpayment.[3] The Act does state that the full penalty rate will be levied only if less than 80 percent of the tax liability has been prepaid. For prepayments of at least 80 percent but less than 90 percent, only 75 percent of the full penalty rate will be assessed. In addition, the balance of a corporation's tax liability will now be due in one payment within two and one-half months after the end of the taxable year rather than in two equal installments, one due within two and one-half months after the end of the taxable year followed by one due three months later.

FEDERAL UNEMPLOYMENT TAX

A third change effected by TEFRA relates to the federal unemployment tax (FUTA). Effective in 1983, the FUTA wage base will be increased from $6,000 per employee per year to $7,000 per employee per year. The FUTA rate applied to the above wage base will also increase from a net of .7 percent to .8 percent for those firms that receive credit for the maximum state unemployment tax. As a result, the minimum federal unemployment tax to be paid on an employee's earnings will increase from $42 to $56. While not a large absolute increase per employee (only $14), the increase represents a percentage increase of 33.3 percent. Furthermore, it is likely that each state will increase the wage base for the state unemployment tax levy to $7,000, thus resulting in higher state costs as well.

REPORTED TIP INCOME

A fourth change affects food and/or beverage establishments which (1) serve their product for on-premise consumption,[4] (2) normally have ten or more employees, and (3) whose employees usually receive some of their compensation in the form of tips from customers. Commencing in 1983, such businesses will be required to file a report with the Internal Revenue Service disclosing gross food and beverage sales, charged food and beverage sales (including the tips listed on charge tickets), and tip income reported by employees in the aggregate. If the aggregate reported tips are less than 8 percent of reported total food and beverage sales, the deficiency must be allocated among the employees and reported both to the IRS and to the employees. This allocation requirement becomes effective for the second quarter of 1983.

PENSION PLANS

The final change to be discussed concerns pension plans. TEFRA lowers the maximum annual deductible contribution by a corporation to a defined contribution plan from the lesser of 25 percent of compensation or $45,475 per employee to the lesser of 25 percent of compensation or $30,000 in 1983 and subsequent years. For defined benefit plans, the annual benefit to an employee's retirement account cannot be more than the lesser of 100 percent of average compensation for the highest three years or the amount that would provide an annual benefit of $90,000 at age 62,[5] the latter down from $136,425. No cost of living adjustments will be made to the new limits before January 1, 1986.

In recent years, many small businesses were incorporated because the deductible contributions to corporate pension plans were more than could be made under HR10 or Keogh plans for nonincorporated businesses. TEFRA has attempted to put corporate and noncorporate plans on a more equitable basis. Starting in 1984, one can make contributions under a Keogh defined contribution plan of no more than $30,000. These limits were $15,000 or 15 percent of compensation. Furthermore, TEFRA places the same limits on defined benefit plans for self-employed persons as for corporate plans, effective January 1, 1984, and eliminates the 6 percent penalty on voluntary nondeductible excess contributions. The rule for HR10 plans that distribution must begin at the earlier of retirement or when the participant becomes 70.5 years old now is applied to all qualified pension plans. If a Keogh plan is considered "top-heavy"[6] by the IRS, the plan must meet several new restrictions to remain qualified. This move toward parity could eliminate the primary organizational benefit of many professional corporations, thus making the corporate form of organization both uneconomical and unnecessary. To provide relief to such corporations, Congress included provision for a two-year (1983-1984) period during which personal-service corporations can be liquidated without incurring many of the unfavorable tax consequences normally associated with corporate liquidations.

The Act does not contain several measures that were proposed in the original Senate bill. Business meals are still deductible in full, and the holding period for long-term capital gains remains more than one year. The Senate bill attempted to reduce the deduction for non-out-of-town business meals to only 50 percent of the cost and the holding period for long-term capital gain treatment to more than six months.

The above discussion does not attempt to be all inclusive regarding TEFRA's business related provisions; however, those provisions affecting the vast majority of business organizations have been briefly discussed. If a more detailed analysis of a specific provision is required, a tax professional should be consulted.

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[1] The percentage of the income tax liability above $25,000 that can be offset by the investment tax credit has been lowered by TEFRA from 90 percent to 85 percent for years beginning after 1982.

[2] Exception 3 has been adjusted from 80% to 90% to be consistent with the new law.

[3] The interest rate charged by the IRS is tied to the prime rate charged by banks to large businesses, as determined by the Board of Governors of the Federal Reserve System. The current rate of 20 percent will be lowered to 16 percent, effective January 1, 1983. See Internal Revenue Code Section 6621 for a complete analysis of the interest rate determination.

[4] Receipts which are allocable to carry-out sales do not have to be reported (Code Sec. 6053(c)(1), (3) and (4) as amended by the 1982 Act, Section 314).

[5] The limitation must be actuarially reduced where retirement benefits commence before age 62, but will be actuarially increased where benefits begin after age 65.

[6] A defined benefit plan is top-heavy if the present value of the accumulated accrued benefits for key employee participants for the year exceeds 60% of the present value of the accumulated accrued benefits for all participants. A defined contribution plan is top-heavy is the sum of the account balances of key employee participants for the year exceeds 60% of the sum of the account balances for all participants.

FURTHER THOUGHTS ON THE IRA

Warren E. Banks
Distinguished Professor of Finance; Chairholder,
Harold A. Dulan Finance Chair in Capital Formation
University of Arkansas, Fayetteville

Much has been written about the so-called Individual Retirement Account (IRA), especially since the dramatic broadening of its availability brought about by the Economic Recovery Tax Act of 1981 (ERTA). The purpose of this paper is to explore selected investment characteristics of this tax deferral device and to synthesize certain of the investment strategies that have been suggested as to its use.

To the extent that Social Security is a somewhat questionable feature of retirement planning for coming decades, the IRA perhaps can more than offset the loss or diminution of a direct retirement payment from the government.[1] The tension is evident: annual FICA deductions compete with yearly IRA contributions, so that those who perhaps most need to be weaned away from dependence upon or expected reliance upon Social Security are likely to be those who are least able to participate in an IRA program.

At least in early 1981 pre-ERTA days it was observed that "...the IRA has failed to generate substantial retirement savings, and its only significant effect has been to provide a tax haven for upper income taxpayer."[2] Whether or not this criticism is an overstatement, it is now well known that the 1981 Act substantially encouraged the increased use of this investment vehicle by expanding its availability to include all wage earners without regard to their participation in other qualified retirement plans.[3]

The same critic has said that the effect of the IRA program "...is to redistribute wealth to the higher income brackets."[4] Implicit in that statement is the thought that the tax deferral feature is more attractive to one in the 50% marginal tax bracket than to another in the 30% bracket, and that investors in the former category are presumptively better able to participate than those in the latter. Implicit also is the notion that Treasury revenues lost from the former group ultimately may need to be made up at least partially by the latter. Even if these complaints were true, they may be totally beside the point if the major purpose of an IRA is to encourage individual self-dependence during the retirement period. Specifically, if a tax gimmick is needed to cause the 30% taxpayer to shift a dollar from consumption to saving, then the improved IRA rules may be a strong first step toward self-dependence; more "equitable" rules which further the achievement of this goal and which also assuage the critics may need to await the evolutionary process.

COMPETING FOR THE RETIREMENT CONTRIBUTION

Should existing qualified retirement plans wish to compete for IRA dollars they are permitted to offer "qualified voluntary employee contributions"[5] (QVECs) that offer similar tax deferral features. A discussion of QVECs versus IRAs is beyond the scope of this paper though the matter has been treated in depth in other places.[6] However, it is evident that a taxpayer cannot fully enjoy them both.

In setting up the new deductibility limitations, in traditionally convoluted fashion, the Internal Revenue Code permits a deduction for "qualified retirement contributions" equal to the lesser of $2,000 or an individual's compensation for the year.[7] But, this raises the question: what is a "qualified retirement contribution?" Apparently it is both a cash QVEC and a cash IRA payment.[8] May one deduct both in a given year? Apparently not, for the "qualified retirement contribution" deduction may not exceed the lower of $2,000 or full compensation *reduced* by the amount of any QVEC.[9] But what is a QVEC? It is any voluntary contribution (one not required as a condition of employment) made by an employee to a qualified plan that specifically permits such contributions.[10] Further, such a contribution will be treated as a QVEC (tentatively deductible) unless the contributing employee instructs the employer not to regard it as such.[11] The upshot is that should the employee fail to so notify the employer properly, the contribution will be treated as a QVEC and will jeopardize the deductibility of his IRA contribution. Thus, double deductions are not available, and if for any reason one should seek to maintain both an IRA and a QVEC, the deductibility of payments to the latter apparently will take precedence over the former. Presumably, this would cause any resulting non-deductible IRA contribution to be treated as excess and subject it to an excise tax on excess contributions.

Because the accumulation of IRA contributions is permitted to compound free of income taxation, spectacular sums can be achieved given double-digit yields and reasonably long accumulation periods. This might tempt a participant to contribute even more each year than the amount he or she is permitted to deduct on the current tax return. However, the Code imposes a 6% excise tax on any contribution in excess of the deductible amount and re-imposes the tax each year that the excess amount is left in the account.[12] Though another section of the Code seems specifically to prohibit the acceptance of more than the deductible amount,[13] one author has suggested that the only effect of violation of this provision is imposition of the excise tax rather than loss of the IRA's tax exempt status, and that non-taxable yields conceivably could rise sufficiently to permit IRA retention of the excess contribution, continuing coverage of the cost of the excise tax, and the earning of a profit on the penalized contribution.[14] The author of this paper reserves his opinion on this particular area of interpretation.

COMPOSITION OF THE IRA PORTFOLIO

Assuming that the tax deferral features of the IRA have captivated the investor, a question arises as to the composition of the portfolio. The repository may be a bank or any other trustee satisfactory to the Treasury,[15] such as a savings and loan, credit union, insurance company, or brokerage firm that (as custodian) can permit the IRA participant to direct the management of the portfolio. Though the flexibility of the latter will appeal to many business persons, commissions and other latent costs (including the opportunity cost of the investor's own services) must be considered.

As tax deferral seems to emerge as the principal attraction of an IRA, it would seem that, *ceteris paribus,* the greater the tax that is saved the greater the IRA advantage. To the extent that foregoing higher income yields would normally involve greater tax loss than foregoing long-term capital gains, some incentive exists to direct the portfolio toward income securities. This seems to imply that the investor who would choose a self-directed brokerage house account for the purpose of aggressive pursuit of capital gains might reconsider diverting his efforts to managing a *taxable* capital gains portfolio and place IRA dollars in an income portfolio (with yields as high as his or her risk aversion will permit) that requires a minimum of supervisor effort. Other authors have suggested that the investor should consider borrowing on his taxable capital gains portfolio and investing the deductible proceeds in a low-risk IRA income oriented alternative.[16] They conclude that an investor should seek to swap a favorable capital gains tax situation for an even more favorable deferred ordinary income tax situation.

SALES CAMPAIGNS

Ample criticism has been raised, and not without justification, against suggestions that one can become a millionaire at retirement by early and prudent IRA participation, provided one starts early enough and a sufficiently high investment yield is permitted fully to compound in a tax-free environment.[17] While such calculations may be arithmetically correct given their underlying assumptions, it can be argued that these figures ignore inflation and fail to state the retiree's true worth in terms of current dollars. This is true, but nominal dollars are often used in a variety of contexts without an inflation adjustment. Should the investor wish to adjust for inflation he or she may merely multiply the accumulation by the present value factor associated with the inflation rate expected over the accumulation period.[18] Yet this fails to address the question fully. For example, discounting the accumulation by an assumed inflation rate will always produce a positive figure, however small. If the alternative use of the $2,000 annual contribution is expenditure on current consumption, then unfortunately there would be no retirement accumulation against which to apply an inflation adjustment, so that the fact that inflation erodes savings is no reason at all to forego saving.

A more relevant pair of variables are the yield and the inflation rate. To the extent that the former exceeds the latter, the IRA participant may gain in real terms. To the extent that the latter exceeds the former, the participant may lose. But this merely restates the problem of purchasing power risk inherent in many investments and suggests that the investor should seek an IRA that will yield at a rate higher than the expected rate of inflation, just as he or she would do with any other investment vehicle.

An even more important concern for the would-be millionaire is that the accumulation ultimately will be taxed at ordinary income rates,[19] and that the configuration of the outflowing tax stream will be a function of the type of settlement option used by the retiree (lump-sum or installments for *n* years) and his or her effective individual tax rate at that time. As for the inflation adjustment, barring a major reversal in policy the IRS will tax the nominal dollars in the accumulated fund rather than the inflation-adjusted dollars. Thus, an adjustment for expected future tax becomes imperative. The tax-adjusted result could then be more appropriately compared with a net after-tax alternative compound sum that could reasonably be expected from an investment taxable during the accumulation period.

Still another defensible adjustment (that incidentally should make the IRA alternative appear even better) would be to assume the participant will take all tax savings generated at the time of each annual contribution and invest them elsewhere during the accumulation period. This assumption of rationality may, of course, be unfounded. Nevertheless, as the tax deferral concept emerges as the principal advantage of an IRA, it seems imprudent to fail to view the "saved" tax dollars as a free annual loan from the Treasury that is available for alternative investment elsewhere.[20] Thus, the annual contribution multiplied by 1 minus the individual's tax rate could be viewed as invested elsewhere at an assumed yield over the IRA growth period, and the amount to which it would compound by the time of retirement would constitute an enhancement of the IRA advantage.

Of course, an assumption as to the current tax status of the additional investment is needed. If additional investment funds could accumulate free of tax in the IRA, such an alternative would be a powerful boost to the retirement plan. However, as previously noted the excise tax at least partially closes this door, unless some day it is opened by legislative change. Even so, a participant may opt for tax *forgiveness* by investing the annual tax savings in municipals. But, even if annual savings are invested in a currently taxable alternative, the net after-tax accumulation will lever up the IRA program. Further, there would presumably be no constraints on the use of this taxable alternative fund prior to retirement such as there are with the IRA itself.[21]

Thus, some IRA advertising may mislead the unwary, but the trick that has been played may still accrue to the retiree's benefit especially if the alternative conduct would be to forego participating in an investment program. The better informed investor will make a more careful analysis and will adjust the compounding process both for the ultimate tax loss at retirement and the growing after tax gain resulting through reinvestment of the tax savings. However, whether the analyst uses a meat axe or a scalpel in making the analysis and decision, the tax deferral characteristics of an IRA are difficult to resist for one in a currently high tax bracket and for one who has the cash with which to participate.

UNRESOLVED ISSUES

The attraction of the IRA could easily diminish with a further decline in interest rates. Even so, the existence of a 10% penalty tax on premature withdrawals could encourage a disenchanted participant to "stay the course."[22] Further, depending upon the investor's tax rate, yields, and the period overwhich funds remain invested, one may withdraw all or part of the accumulation, pay the penalty tax, and still perhaps come out ahead.[23] However, abuse of this practice conceivably could provoke legislative change, ranging from an increase in the penalty rate to treating the premature withdrawal as a prohibited transaction that causes loss of the IRA's tax exempt status.[24] Though this may be unlikely, it does question the prudence of counting too heavily upon early access to the IRA funds.

Cross currents seem to permeate the legislative attitude toward the IRA. For example, it has been noted that the 1981 Act liberalized the income tax treatment of the investment device. However, the Tax Equity and Fiscal Responsibility Act of 1982 added a section to the Code that limits the number of IRA and qualified plan dollars that may be excluded from an estate for estate tax purposes to an aggregate of $100,000 per decedent.[25]

Nevertheless, despite any uncertainty as to possible future changes in the law, it seems sufficient to note that Congress has presented the investor (who can participate in an IRA and who is comfortable with its constraints) with a tax-deferral vehicle well worthy of his or her consideration. Under present circumstances, the sooner such a program is begun the greater will be its return.

[1] Westlin, *"The IRA Revolution in Retirement Planning,"* FINANCIAL AND ESTATE PLANNING para. 20, 501 (1982).

[2] *"Costs and Consequences of Tax Incentives: The Individual Retirement Account,"* 94 HARV. L.REV. 864 (1981).

[3] I.R.C. 219(b)(2), that previously proscribed IRA deduction for participants in other such plans, presently deals with an entirely different matter (simplified employee pensions).

[4] 94 HARV. L.REV., *supra* note 2, at 880.

[5] I.R.C. 219(e)(2).

[6] *E.g.*, Sanger and Givner, *"Do Not Permit Deductible Employee Contributions under Corporate Retirement Plans,"* TAXES 368 (May 1982).

[7] I.R.C. 219(a) & (b)(1).

[8] I.R.C. 219(e)(1).

[9] I.R.C. 219(b)(3).

[10] I.R.C. 219(e)(2)(A)(i).

[11] I.R.C. 219(e)(2)(A)(ii).

[12] I.R.C. 4973(b).

[13] I.R.C. 408(a)(1).

[14] Sherman, *"Individual Retirement Accounts: Reflections on Some Unanswered Questions,"* 23 ARIZ. L.Rev. 935, 941 (1981).

[15] I.R.C. 408(a)(2).

[16] Bagamery and Eckhardt, *"The IRA: Merits and Optimal Holdings,"* COLLEGIATE FORUM 14 (Fall 1982).

[17] Westlin's representative table includes the sum of $3,391,722 as the retirement "worth" at age 70 of one who starts a 12% IRA at age 25. Westlin, *supra* note 1.

[18] *E.G.*, $3,391,722 times .014 (the relevant present value factor assuming a 10% constant inflation rate over a 45 year period) equals $47,484, the "real" worth of the accumulation.

[19] I.R.C. 408(d)(1).

[20] This analysis is explored further in Kulsrud, *"Individual Retirement Accounts: A Close Examination of the Opportunities,"* TAXES 83, 87 (Feb. 1982).

[21] It will be recalled that IRAs generally are not available without penalty before age 59½, absent death or disability. I.R.C. 408(f).

[22] I.R.C. 408(f)(1).

[23] Kulsrud, *supra* note 20, at 88. The author also makes a case for borrowing the fund with which to invest in an IRA, given a favorable relationship between the cost of borrowing and the yield on the invested funds. *Id.* at 89.

[24] Such a penalty appears to be the case if the owner of an IRA borrows from the account. I.R.C. 408(e)(3). Apparently pledging the account is less severe and merely causes the amount pledged to be treated as a taxable distribution to the borrower. I.R.C. 408(e)(4).

[25] I.R.C. 2039(g).

THE ELDERLY, BLACKS, AND TRANSFER PAYMENTS IN ARKANSAS

John Thanopoulos
Assistant Professor of Marketing
University of Akron

Joseph W. Leonard
Instructor
Miami University

Relative to the populations of other states, Arkansans receive an alarmingly high amount of transfer payments. This study relates, on a per county basis, the state's transfer payments to the proportion of its elderly, the proportion of its blacks, and the median age of its resident population.

DEFINITIONAL AND METHODOLOGICAL CONSIDERATIONS

This article adopts the following definitions: *Transfer Payments* to persons is income for which services are not currently rendered, consisting of both governmental and business payments.[1] *Personal Income* is the sum of wage and salary disbursements, other than labor income, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and transfer payments, less personal contributions for social insurance.[2]

In the United States, transfer payments as a percent of personal income have significantly increased in the last 50 years: rising from a modest 1.9% in 1930, to 6.6% in 1950,[3] and to 13.6% in 1980.[4] There has also been a significant shift between the entities paying for transfer payments:

> in 1948, transfer payments were 33% of the total federal expenditure; whereas, they were 17% of the state and local expenditure. In 1978, transfer payments were 40% of the federal expenditure and only 11% of the state and local expenditure.[5]

One has to consider also that substantially different ratios of transfer payments to personal income may be partially supported by the following statement: "Government income redistribution is...perfectly possible to be in favor of one and not of the other."[6] Similarly, a large number of overlapping criteria and policy "noise" may be responsible for the complete justification of transfer payments.

A long string of variables determines transfer payments; therefore, the three specific ones that this study utilizes do not assume all-encompassing coverage.[7] The response variable of this study is transfer payments divided by personal income by place of residence, which is analyzed under the following restrictive considerations, due to the state's particular demographic characteristics:

1. Predictor variables used are:
   (a) Proportion of persons 65 years or older
   (b) Proportion of blacks
   (c) Median age of resident population.
2. The variables (b) and (c) potentially present multicollinearity implications that have been bypassed.
3. Simple and multiple regression analyses suffice in order to investigate the relationship between the predictor and the response variables.

EXHIBIT A

ARKANSAS POPULATION CHANGE: 1950-1960

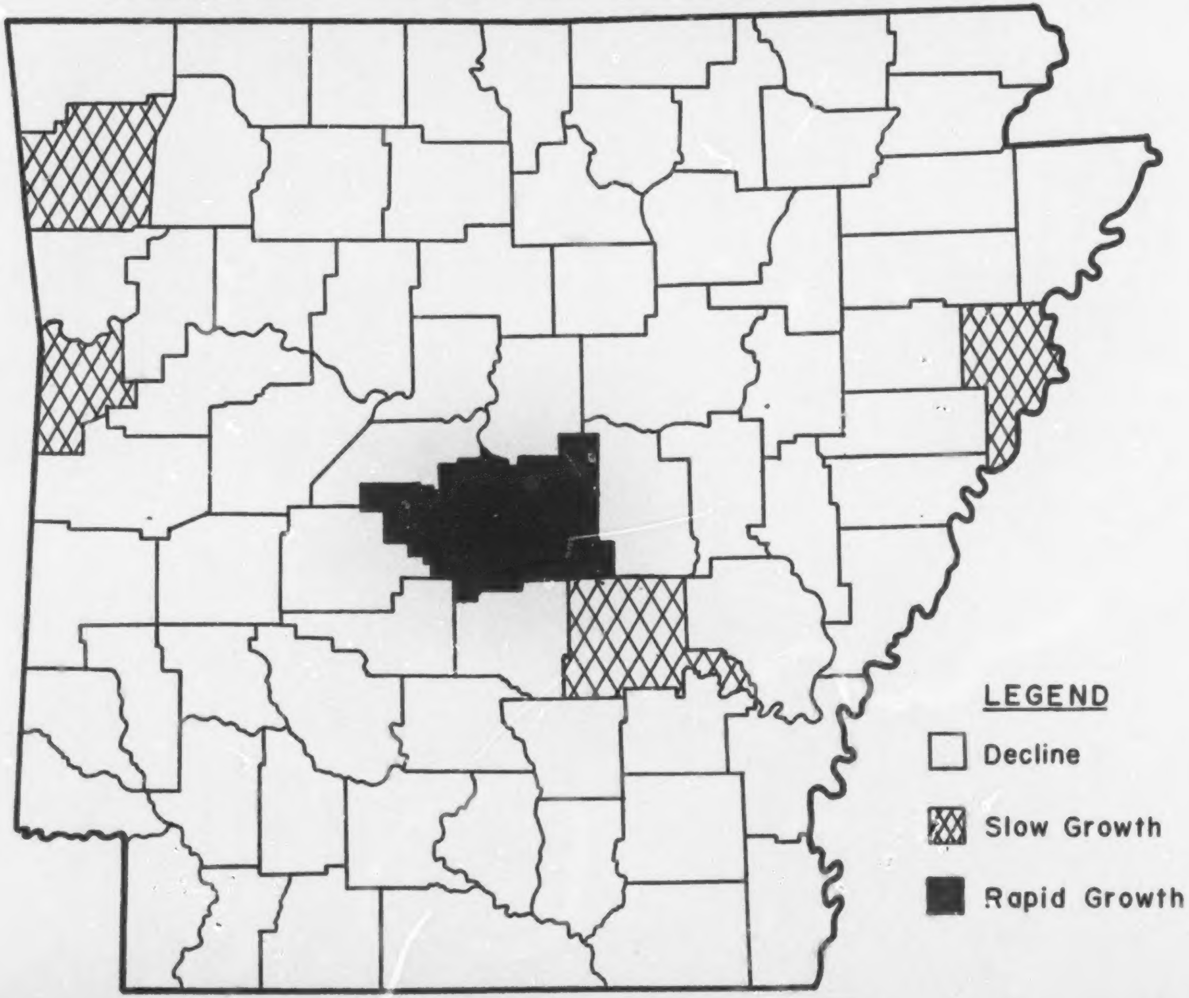
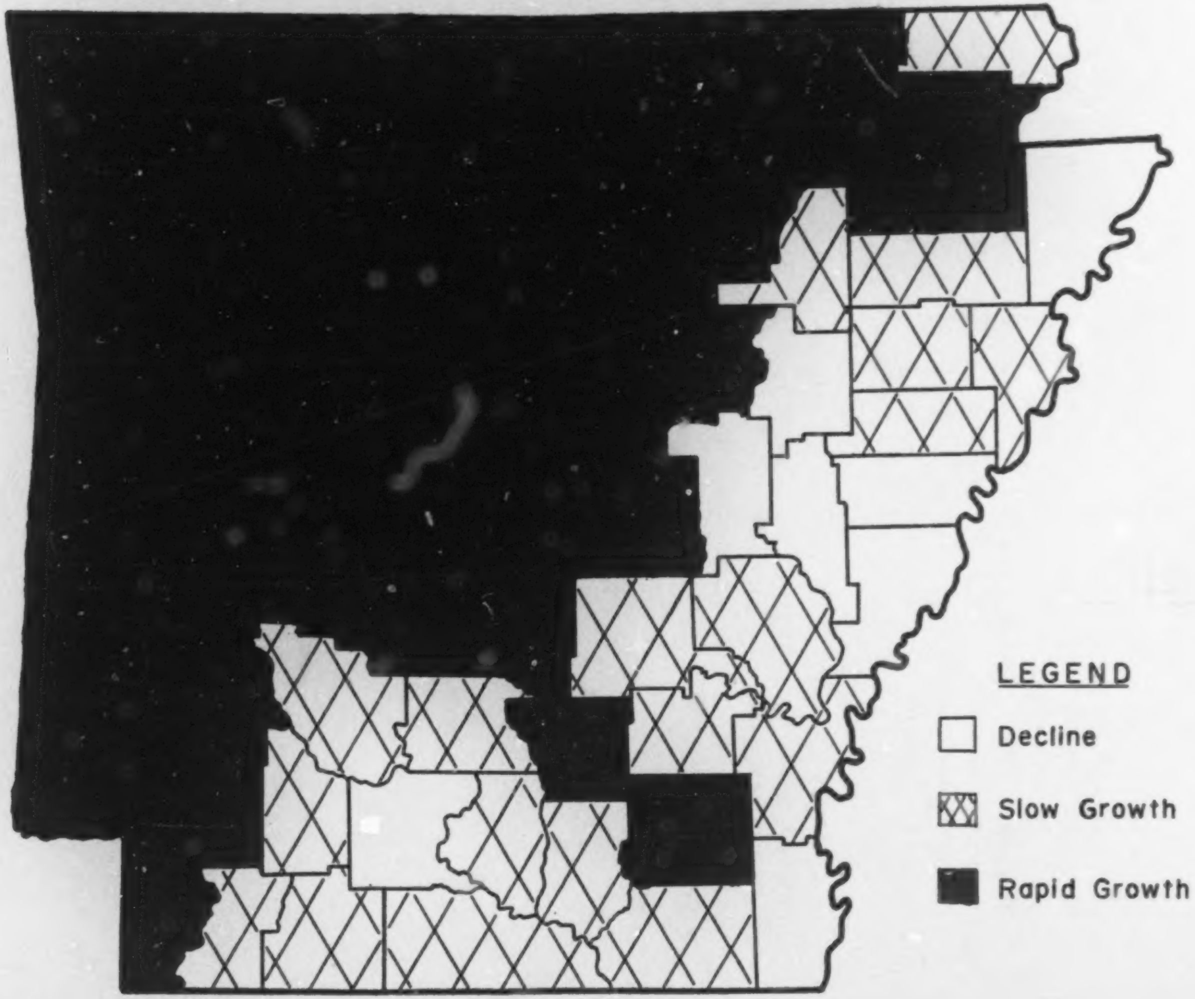


EXHIBIT B

ARKANSAS POPULATION CHANGE: 1970-1980



STUDY DATA

Table 1 presents information on the response variable for 1976 and 1980, and on the three predictor variables for 1980 for the U.S. and the Southeast Region (as defined by the Bureau of Economic Analysis). The differences at the regional level are startling (examples: percent of blacks ranges from 3.3% in West Virginia to 35.2% in Mississippi; percent of persons 65 and over, from 5.1% in Virginia to 17.3% in Florida; and the response variable, from 12.4% in Louisiana to 19.2% in West Virginia). Such differences support the previously adopted thesis that case analysis for each state is necessary in order to investigate transfer payments' relationships.

TABLE 1: COMPARISONS AMONG STATES

	Transfer Payments divided by Personal Income by Place of Residence (%)		Percent of Persons 65 and over	Percent of Blacks	Median Age
	1976	1980	1980	1980	1980
U.S.	14.0	13.6	11.3	11.7	30.0
Southeast Region*					
Alabama	16.2	16.6	11.3	25.6	29.3
Arkansas	17.9	17.9	13.6	16.3	30.6
Florida	17.9	17.2	17.3	13.8	34.7
Georgia	13.7	13.4	9.5	26.8	28.7
Kentucky	15.6	16.0	11.2	7.1	29.1
Louisiana	13.5	12.4	9.6	29.4	27.4
Mississippi	17.1	17.6	11.5	35.2	27.7
North Carolina	13.4	13.4	10.2	22.4	29.6
South Carolina	14.4	14.7	9.2	30.4	28.2
Tennessee	14.9	14.9	11.3	15.8	30.1
Virginia	13.2	13.5	5.1	18.9	29.8
West Virginia	18.4	19.2	5.4	3.3	30.4

Sources: U.S. Department of Commerce: Bureau of Economic Analysis, *Local Area Personal Income 1975-1980*, Vol. 6, Southeast Region (Washington, D.C.: U.S. Government Printing Office, June 1982). pp 3, 30, 49, 70, 89, 131, 164, 183, 206, 234, 248, 274, 311; and U.S. Department of Commerce: Bureau of Census, *Statistical Abstract of the United States—1981*, 102d Edition (Washington, D.C.: U.S. Government Printing Office, 1981), pp 28, 29, 32.

*As defined by the Bureau of Economic Analysis

Table 2 presents for 1950 and 1980 comparative data on the percent of persons 65 and over, the percent of blacks, and the median age of the resident population. It also presents for 1980, transfer payments divided by total personal income by place of residence, column 1, (response variable of this study), and by total personal income by place of work, column 2, (a variable that may indicate the amount of transfer payments received in comparison to productive income).

FINDINGS AND CONCLUSIONS

The main thrust of this study is to elaborate on the relationship between the response variable (the ratio of transfer payments divided by total personal income by the place of residence) and the predictor variables (percent of persons age 65 and over, percent of blacks, and median age).

TABLE 2: COMPARISONS AMONG COUNTIES

County	1980					1950		
County	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arkansas	21.7	15.6	19.9	14.2	31.7	23.3	7.0	26.7
Ashley	22.2	18.3	27.3	12.8	30.0	28.0	6.6	24.3
Baxter	53.8	27.5	0.1	27.3	46.9	0.1	7.2	27.0
Benton	27.4	27.5	0.1	16.0	33.5	0.1	11.4	31.8
Boone	27.6	17.2	0.1	16.7	33.8	0.0	9.4	30.5
Bradley	29.2	20.3	29.1	18.4	34.7	33.7	7.8	26.6
Calhoun	27.6	22.1	28.1	16.8	32.3	34.4	9.6	27.8
Carroll	36.6	21.0	0.0	18.9	37.5	0.2	12.2	32.0
Chicot	55.0	29.4	52.9	15.4	28.0	54.4	8.7	26.1
Clark	27.8	20.0	21.8	14.4	28.9	27.3	8.2	25.9
Clay	39.6	22.9	0.0	18.5	36.5	0.0	7.6	25.1
Cleburne	55.0	25.1	0.0	17.9	38.1	0.0	8.6	27.0
Cleveland	75.3	20.3	15.2	16.1	33.1	24.4	9.1	25.6
Columbia	26.8	18.1	34.7	15.9	31.4	39.1	7.1	25.9
Conway	28.4	20.7	15.2	14.4	31.4	23.6	8.2	26.0
Craighead	20.0	15.1	4.5	10.9	28.5	3.1	6.4	24.6
Crawford	40.7	19.1	1.2	11.9	30.0	2.9	8.7	27.8
Crittenden	28.6	16.0	42.8	9.7	26.0	66.8	6.5	23.2
Cross	26.0	16.6	24.8	12.5	28.1	32.2	6.9	22.8
Dallas	34.0	22.7	37.6	17.1	32.6	39.2	9.2	27.3
Desha	33.0	21.3	42.7	13.7	27.5	47.9	6.6	24.1
Drew	28.0	20.2	27.3	13.4	28.5	33.7	8.6	25.3
Faulkner	27.4	17.6	8.0	10.6	26.8	11.2	8.0	25.9
Franklin	39.2	22.3	1.0	16.0	32.4	1.6	10.3	29.9
Fulton	48.2	26.4	0.0	19.4	37.4	0.1	9.3	27.7
Garland	36.0	20.7	8.2	19.5	37.2	11.9	9.8	32.0
Grant	40.0	16.1	3.2	12.9	31.8	8.2	9.0	28.3
Green	26.8	18.3	0.0	14.2	32.0	0.1	7.5	25.9
Hempstead	26.4	17.5	29.9	17.0	32.7	40.8	9.1	28.4
Hot Springs	28.3	17.5	11.2	14.2	32.4	12.9	7.1	26.6
Howard	20.4	26.8	18.5	17.6	32.8	20.5	9.1	29.2
Independence	21.3	17.8	1.8	14.0	31.9	2.8	8.7	28.0
Izard	64.7	27.0	0.0	24.7	43.8	1.0	8.9	27.5
Jackson	33.5	22.2	13.3	14.8	32.3	14.5	6.5	24.4
Jefferson	20.7	17.0	40.6	12.2	28.3	49.7	7.5	27.0
Johnson	49.4	26.6	1.6	17.3	33.6	1.5	9.4	28.5
Lafayette	39.9	22.0	41.0	17.7	32.3	45.0	8.6	26.0
Lawrence	39.1	22.4	0.5	16.8	33.4	1.3	7.1	24.8
Lee	60.7	27.3	54.8	14.7	27.6	59.2	7.6	22.9
Lincoln	43.7	20.2	35.9	13.5	29.6	53.3	7.5	24.3
Little River	20.9	17.5	24.9	13.2	29.8	33.7	8.9	27.2
Logan	52.7	26.7	1.5	17.0	33.1	2.5	10.1	30.5
Lonoke	33.5	15.5	12.2	11.6	29.6	24.4	8.0	25.3
Madison	43.7	20.5	0.0	15.6	33.6	0.0	9.6	27.1
Marion	64.0	26.8	0.0	19.5	38.6	0.0	8.3	27.3
Miller	31.3	19.8	24.2	13.4	30.3	27.0	7.4	27.9
Mississippi	24.0	17.7	27.2	11.0	26.6	26.8	4.9	22.2
Monroe	44.2	23.7	40.8	16.0	30.6	48.8	7.7	24.3
Montgomery	50.1	24.6	0.1	18.8	37.6	0.5	9.8	29.2

TABLE 2: COMPARISONS AMONG COUNTIES
(Continued)

County	1980					1950		
County	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Nevada	36.9	21.7	30.6	18.4	32.9	36.0	8.8	28.0
Newton	81.5	30.8	0.1	13.3	31.4	0.0	7.7	22.6
Ouachita	30.3	20.2	36.0	16.1	32.9	0.0	7.7	22.6
Perry	79.3	25.1	1.8	14.5	32.5	4.1	9.1	27.1
Phillips	46.2	28.6	52.9	13.8	27.1	59.3	7.2	25.1
Pike	37.8	21.6	4.0	16.6	33.3	4.9	8.7	28.2
Poinsett	31.3	19.0	6.9	12.8	30.8	8.3	5.0	21.2
Polk	39.3	24.7	0.0	18.3	35.7	0.0	10.6	30.1
Pope	23.7	18.4	2.1	11.8	29.4	3.1	8.5	27.0
Prairie	43.8	20.3	14.0	14.8	32.4	16.3	7.7	25.3
Pulaski	14.8	13.0	23.9	9.8	28.5	24.0	7.4	30.1
Randolph	32.3	21.8	0.9	15.3	32.8	1.0	8.1	26.0
St. Francis	25.2	19.7	46.0	12.0	26.6	57.2	6.3	22.9
Saline	21.2	12.3	2.7	9.1	30.3	5.6	8.5	31.0
Scott	49.4	24.2	0.0	16.7	35.5	1.3	8.7	28.1
Searcy	58.9	30.4	0.0	17.0	35.4	0.0	8.5	26.2
Sebastian	16.4	15.4	5.2	12.7	30.7	6.7	8.4	30.0
Sevier	31.8	20.1	5.6	15.5	32.6	9.6	9.7	29.7
Sharp	98.3	29.2	0.7	22.7	41.3	0.1	9.1	27.3
Stone	52.2	27.1	0.1	15.4	34.6	0.1	7.3	25.1
Union	20.3	15.0	28.8	15.7	32.3	31.9	6.6	28.3
Van Buren	64.0	27.9	0.4	17.8	38.5	1.2	8.7	27.5
Washington	20.7	15.8	1.5	10.7	27.4	0.9	8.9	27.4
White	36.6	20.1	2.9	13.5	29.9	3.5	7.8	26.2
Woodruff	37.3	22.2	31.1	16.4	30.5	37.6	7.3	23.1
Yell	40.6	24.3	2.1	16.8	34.7	3.9	10.1	29.9

Sources: U.S. Department of Commerce: Bureau of Economic Analysis, *Local* Area Personal Income 1975-1980, Vol. 6, Southeast Region (Washington, D.C.: U.S. Government Printing Office, June 1982), pp. 49-67; U.S. Department of Commerce: Bureau of the Census, *1980 Census of Population,* Vol. 1, Chapter B, Part 5 (Arkansas) (Washington, D.C.: U.S. Government Printing Office, August 1982), pp. 5-10; and U.S. Department of Commerce: Bureau of the Census, *Census of Population 1950,* Vol. 2, Part 4 (Arkansas) (Washington, D.C.: U.S. Government Printing Office, 1950), pp. 29, 78-82.

Notes:
(1) 1980 transfer payments divided by personal income by place of work
(2) 1980 transfer payments divided by personal income by place of residence
(3) 1980 percent blacks
(4) 1980 percent age 65 years and over
(5) 1980 median age
(6) 1950 percent blacks
(7) 1950 percent age 65 years and over
(8) 1950 median age

Evidently, interaction effects exist among the three predictor variables, for example, some blacks are old. However, during analysis, the use of more-than-one predictor (independent) variables and of second or higher-order models proved to be meaningless due to the very high marginal improvement of F and r^2 statistics, given the introduced parsimoniousness. Also, the removal of presumed outlier information (examples: Baxter, Izard, and Sharp Counties) did not produce any improvements worth mentioning. Therefore, in the final analysis the full country data set was utilized.

Interestingly enough, when the response variable was regressed on the variable "percent of persons 65 and over", it produced an r^2 of 0.381; when regressed on the "median age", it produced an r^2 of 0.255; and when regressed on the variable "percent of blacks", it produced an r^2 of 0.012, signaling that there exists no evident relationship between blacks and the amount of transfer payments.

In the continuation, comparison of 1950 and 1980 data for all of the counties in Arkansas showed that the percentage of older persons increases: from a modest 7.1% in Saline County to a sizeable 279.2% in Baxter. Also, in 1950, 69 counties had a single-digit percentage of the elderly; whereas, in 1980 only 3 of them had single-digit percentages. Actually, in 1980, in 69 Arkansas counties the percentage of the elderly was above the national average of 11.3%.[8]

Obviously, median-age comparisons cannot present equally dramatic changes. In addition, the "positional" character of the median obstructs conclusions with respect to the average age of the state's work force and its non-productive compensation. Furthermore, in a multiple regression where percent of older persons and median age were the predictor variables the r^2 was 0.394. Note that for this model, apart from the issue of multicollinearity,[9] the hypothesis that the coefficient of the median-age variable is equal to zero could not be rejected (probability of a greater t is 0.218).

Finally, in all but Pulaski, Saline, and Washington Counties, the median age has increased. Since those counties represent 21.6% of the state's population,[10] and given the previously mentioned additional considerations, the aging Arkansas work force may represent another dimension of the high transfer payments issue with possible overtones of structural unemployment. Further research on the topic appears to be warranted.

In conclusion, the analysis indicates that the percentage of a county's blacks may not be a significant factor of that county's dependence on transfer payments. In contrast, the percentage of persons 65 years old and over presents a positive relationship when compared to the same response variable. Obviously, this finding may be considered alarming since the state's elderly have in recent years increased more than the national average. This means that since (a) transfer payments are types of compensation for nonproductive ends, (b) the state has many elderly, and (c) there is a positive relationship between the above variables, Arkansas income figures may (1) overestimate the State's ability to keep up with the economic growth of the rest of the nation and (2) hide its partially unproductive capacity.

[1] U.S. Department of Commerce, Bureau of Economic Analysis, *Local Area Personal Income: 1975-1980,* Vol. 6, Southeast Region (Washington: U.S. Government Printing Office, June 1982), p. X.

[2] Ibid., p. VI.

[3] Frank A. Hanna, *State Income Differentials 1919-1954 (Durham, NC: Duke University Press, 1959), p. 107.*

[4] U.S. Department of Commerce, op. cit., p. 3.

[5] George F. Break, *"The Role of Government Taxes, Transfers, and Spending," in Martin Feldstein, editor, The American Economy in Transition* (Chicago: The University of Chicago Press, 1980), pp. 620-621.

[6] Gordon Tullock, "The Lost of Transfers," in James M. Buchanan et al., editors, *Toward a Theory of the Rent-Seeking Society* (College Station, TX: Texas A&M University Press, 1980), p. 269.

[7] For schooling being a determinant of income, see Barry R. Chiswick, *Income Inequality: Regional Analyses within a Human Capital Framework* (New York: National Bureau of Economic Research, 1974), p. 9.

[8] In 1980, Arkansas had 13.6% persons of 65 years and over; U.S. Department of Commerce, Bureau of the Census, *Statistical Abstracts of the United States: 1981,* 102d Edition (Washington: U.S. Government Printing Office, 1981), p. 29.

[9] For a definition see Vincent E. Cangelosi, Phillip H. Taylor, and Philip F. Rice, *Basic Statistics: A Real World Approach* (St. Paul, MN: West Publishing Company, 1979), p. 327. See also, Stephen M. Goldfeld and Richard E. Quandt, *Studies in Nonlinear Estimation* (Cambridge, MA: Balinger Publishing Company, 1976), pp. 217-221; and M. Dutta, *Econometric Methods* (Cincinnati: Southwestern Publishing Co., 1975), pp. 142-156.

[10] U.S. Department of Commerce, op. cit., pp. 49, 64, 67.

WHEN ECONOMIC GROWTH COMES TO AN END: SOME PERSPECTIVES

Thomas R. McKinnon
Director, Bessie B. Moore Center for Economic Education
University of Arkansas, Fayetteville

In recent years a number of writers, both in and outside the economics profession, have written of a coming stationary state in which economic growth will come to an end. Because of recurring crises—population explosion, resource depletion, environmental degradation, and other catastrophies—the continuing expansion of output to which we have become accustomed over the years will no longer be possible.

Various scenarios have been developed, each of which paints a grim picture of what life will be like as societies struggle to adjust. Those scenarios range from futile efforts to resolve employment and distributional conflicts in a no-growth environment to an end to civilization as we know it. (1, 2, 3, 7, 8).

Probably the most comprehensive analysis of impending disaster is outlined in *The Limits to Growth* by Donella Meadows and others. The group reached the conclusion that:

> If present growth trends of world population, industrialization, pollution, food consumption and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity." (4; 7)

Although the Limits-to-Growth model has been soundly criticized with good reason, the thrust of the study rests on a hard truth that the resources of the earth are finite.

Robert L. Heilbroner in *An Inquiry Into the Human Prospect* surveys the forces that will rapidly bring an end to economic expansion. Included are population growth, resource depletion, environmental disruption, climatic change, failure of the Green Revolution, and war as nations struggle over remaining food and resources. As to the possibilities of adjusting to these forces Heilbroner concludes:

> From that period of harsh adjustment, I can see no realistic escape...If by the question, 'Is there hope for man?' we ask whether it is possible to meet the challenges of the future without the payment of a fearful price, the answer must be: No, there is no such hope. (2; 136)

In *The Zero-Sum Society,* Lester Thurow points out that economic change involves losers as well as winners and that losers will struggle to avoid the loss. He notes that:

> Historically we have used economic growth to avoid having to make this judgment (deciding who loses). If we just have more growth, we can have more good jobs for everyryone, and we won't have to worry about taking jobs away from whites and giving them to blacks...economic growth has been seen as the social lubricant that keeps different groups working together. (8; 17)

With slow or no growth, struggles to

avoid losses will be magnified, and the total structure of American society will be threatened.

Other writers, including Herman Daly, emphasize the importance of developing the stationary or steady state, but are pessimistic about our prospects for moving into it without major disruptions. (1)

John Stuart Mill also wrote of the stationary state 135 years ago, but his scenario was quite different. He wrote in *Principles of Political Economy:*

> I cannot, therefore, regard the stationary state of capital and wealth with the unaffected aversion so generally manifested towards it by political economists of the old school. I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. (5; 748).

Mill notes that the political economists preceding him looked on the inevitable stationary-state as an undesirable situation:

> This impossibility of ultimately avoiding the stationary state—this irresistible necessity that the stream of human industry should finally spread itself out into an apparently stagnant sea—must have been, to the political economists of the last two generations, an unpleasing and discouraging prospect. (5; 746)

Much the same attitude toward the prospects of a steady state economy is evident among mainstream economists today.

To the contrary, Mill looked forward to the stationary state as a time when man would no longer be required to devote all his energies to making a living and could participate in large numbers in the arts and philosophy. He states that:

> I confess I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing and treading on each other's heels, which form the existing type of social life, are the most desirable lot of human kind, or anything but the disagreeable symptoms of one of the phases of industrial progress. (5; 748)

He cites the example of the northern and middle states of America as specimens having the most favorable circumstances but doing little with them, "...all that these advantages seem to have done for them...is that the life of the whole of one sex is devoted to dollar-hunting, and of the other to breeding dollar hunters." (6; 337)

Mill outlines a sort of evolution in human society in which warfare is replaced by the struggle for riches which in turn will be replaced by attention to better things. Mill sees the highest stage as the stationary state. He sketches conditions that would include:

> ...a well-paid and affluent body of laborers; no enormous fortunes, except what were earned and accumulated during a single life-time; but a much larger body of persons than at present, not only exempt from the coarser toils, but with sufficient leisure, both physical and mental from mechanical details, to cultivate freely the graces of life, and afford examples of them to the classes less favorably circumstanced for their growth. This condition of society, so greatly preferable to the present, is not only perfectly compatible with the stationary state, but it would seem, more naturally allied with that state than with any other. (5; 750)

Mill describes the stationary state as not the end of real progress but perhaps, the beginning. He states:

> It is scarcely necessary to remark that a stationary condition of

> capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress; as much room for improving the Art of Living and much more likelihood of its being improved, when minds ceased to be engrossed by the art of getting on. (5; 75)

In summary, Mill's view of the stationary state is that it is not only inevitable but also eminently desirable. Only when human beings cease to be engrossed in getting on, can the art of living be improved.

Even though one may find some difficulty in accepting Mill's optimism, his writings are welcome reading after the dismal scenarios of many recent best sellers.

References

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ARKANSAS' POPULATION CHANGE: 1930-1980

Harry French
Associate Economist
University of Arkansas, Fayetteville

Table 1 presents data for the census years 1930 through 1980.

During the first decade, Arkansas' population grew by 5.1 percent. In the 1940s the population fell by 2.0 percent and during the 1950s continued to decrease at 6.5 percent. Then, in the 1960s it increased at 7.7 percent and during the 1970s accelerated to 18.7 percent. Those shifts in population are discussed in the Britton and Graff article, "The Role of Older Americans in Arkansans' Changing Population Patterns," on pages 1-8 in this issue of the *Arkansas Business and Economic Review.*

Noteworthy in the Table 1 data is that in 1930, the 30 counties which equalled or exceeded the state's average density constituted 61 percent of the total population and 41 percent of the total land area. In 1980, the 22 counties which equalled or exceeded the state's average density accounted for 63 percent of the total population but only 31 percent of the total land area.

Furthermore, 42 counties experienced population decreases over the 50 year period. Twelve counties of that group lost population by 25 percent or more. Those counties were Calhoun, Cleveland, Dallas, Lafayette, Lee, Lincoln, Monroe, Montgomery, Nevada, Newton, Prairie, and Woodruff which witnessed the highest loss rate at 50 percent. Of the 33 counties which have gained population, four counties—Baxter, Benton, Pulaski and Washington—have witnessed at least a doubling of their populations; and one county, Saline, has seen its population grow by 239 percent.

Figures 1 and 2, show county population densities relative to the averages for 1930 and 1980, respectively. Note that the 1930 density calculations have been made using the indicated 1980 county land areas and are, therefore, approximations only as some county boundaries have been changed through the intervening 50 years. Nevertheless, such area changes have been small, perhaps one percent, and, consequently, do not appreciably affect the indicated population shifts.

Table 1.
Land Area and Population: 1930 to 1980

Counties	1980 land area	Population								
		1980		Percent change						
	Square miles	Number	Per square mile	1970 to 1980	1960 to 1970	1970	1960	1950	1940	1930
The State ...	52,078	2,286,435	43.9	18.9	7.7	1,923,322	1,786,272	1,908,511	1,949,387	1,854,482
Arkansas	1,006	24,175	24.0	3.5	–	23,347	23,355	23,665	24,437	22,300
Ashley	934	26,538	28.4	6.3	3.1	24,976	24,220	25,660	26,785	25,151
Baxter	546	27,409	50.2	78.9	54.1	15,319	9,943	11,683	10,281	9,519
Benton........	844	78,115	92.6	54.8	39.2	50,476	36,272	38,076	36,148	35,253
Boone.........	584	26,067	44.6	36.7	18.3	19,073	16,116	16,260	15,860	14,937
Bradley	654	13,803	21.1	8.0	-8.9	12,778	14,029	15,987	18,097	17,494
Calhoun	629	6,079	9.7	9.1	-7.0	5,573	5,991	7,132	9,636	9.752
Carroll........	634	16,203	25.6	31.7	9.0	12,301	11,284	13,244	14,737	15,820
Chicot	649	17,793	27.4	-2.0	-4.3	18,164	18,990	22,306	27,452	22,646
Clark	867	23,326	26.9	8.3	2.8	21,537	20,950	22,998	24,402	24,932
Clay	641	20,616	32.2	9.8	-11.7	18,771	21,258	26,674	28,386	27,278
Cleburne......	551	16,909	30.7	63.4	14.2	10,349	9,059	11,487	13,134	11,373
Cleveland	599	7,868	13.1	19.1	-4.9	6,605	6,944	8,956	12,570	12,744
Columbia	767	26,644	34.7	2.7	-1.7	25,952	26,400	28,770	29,822	27,320
Conway.......	558	19,505	35.0	16.1	8.9	16,805	15,430	18,137	21,536	21,949
Craighead	713	63,239	88.7	21.5	10.1	52,068	47,303	50,613	47,200	44,740
Crawford	593	36,892	62.2	43.7	20.4	25,677	21,318	22,727	23,920	22,549
Crittenden	599	49,499	82.6	2.9	1.1	48,106	47,564	47,184	42,473	39,717
Cross	622	20,434	32.9	3.3	1.2	19,783	19,551	24,757	26,046	25,723
Dallas	668	10,515	15.7	4.9	-4.8	10,022	10,522	12,416	14,471	14,671
Desha	746	19,760	26.5	5.3	-9.7	18,761	20,770	25,155	27,160	21,814
Drew	831	17,910	21.6	18.2	-0.4	15,157	15,213	17,959	19,831	19,928
Faulkner......	646	46,192	71.5	46.3	29.9	31,578	24,303	25,289	25,880	28,381
Franklin	609	14,705	24.1	30.1	10.7	11,301	10,213	12,358	15,683	15,762
Fulton	616	9,975	16.2	29.6	15.7	7,699	6,657	9,187	10,253	10,834
Garland	657	70,531	107.4	30.3	15.9	54,131	46,697	47,102	41,664	36,031
Grant.........	633	13,008	20.5	34.0	17.1	9,711	8,294	9,024	10,477	9,834
Greene........	578	30,744	53.2	24.1	-1.7	24,765	25,198	29,149	30,204	26,127
Hempstead....	725	23,635	32.6	22.4	-1.8	19,308	19,661	25,080	32,770	30,847
Hot Spring....	615	26,819	43.6	22.1	0.3	21,963	21,893	22,181	18,916	18,105
Howard.......	574	13,459	23.4	17.9	4.9	11,412	10,878	13,342	16,621	17,489
Independence	763	30,147	39.5	32.7	13.3	22,723	20,048	23,488	25,643	24,225
Izard	581	10,768	18.5	45.9	9.1	7,381	6,766	9,953	12,834	12,872
Jackson.......	633	21,646	34.2	5.8	-10.5	20,452	22,843	25,912	26,427	27,943
Jefferson......	882	90,718	102.9	6.3	4.9	85,329	81,373	76,075	65,101	64,154
Johnson	676	17,423	25.8	27.8	9.7	13,630	12,421	16,138	18,795	19,289
Lafayette	518	10,213	19.7	1.9	-9.2	10,018	11,030	13,203	16,851	16,934
Lawrence	589	18,447	31.3	13.0	-5.5	16,320	17,267	21,303	22,651	21,663
Lee	602	15,539	25.8	-17.7	-10.1	18,884	21,001	24,322	26,810	26,637
Lincoln	563	13,369	23.7	3.5	-10.6	12,913	14,447	17,079	19,709	20,250
Little River ...	516	13,952	27.0	24.6	21.5	11,194	9,211	11,690	15,932	15,515
Logan	717	20,144	28.1	20.0	5.2	16,789	15,957	20,260	25,967	24,110
Lonoke	783	34,518	44.1	31.5	6.9	26,249	24,551	27,278	29,802	33,759
Madison	837	11,373	13.6	20.3	4.2	9,453	9,068	11,734	14,531	13,334
Marion	587	11,334	19.3	61.9	15.9	7,000	6,041	8,609	9,464	8,876
Miller.........	619	37,766	61.0	13.1	5.4	33,385	31,686	32,614	31,874	30,586
Mississippi....	897	59,517	66.4	-4.1	-11.6	62,060	70,174	82,375	80,217	69,289
Monroe	609	14,052	23.1	-10.3	-9.6	15,657	17,327	19,540	21,133	20,651
Montgomery	775	7,771	10.0	33.5	8.4	5,821	5,370	6,680	8,876	10,768
Nevada	620	11,097	17.9	9.8	-5.5	10,111	10,700	14,781	19,869	20,407
Newton	823	7,756	9.4	32.7	-2.0	5,844	5,963	8,685	10,881	10,564
Ouachita......	737	30,541	41.4	-1.1	-2.4	30,896	31,641	33,051	31,151	29,890
Perry	551	7,266	13.2	29.0	14.3	5,634	4,927	5,978	8,392	7,695
Phillips	685	34,772	50.8	-13.2	-9.0	40,046	43,997	46,254	45,970	40,683
Pike	598	10,373	17.3	19.1	10.8	8,711	7,864	10,032	11,786	11,792
Poinsett.......	762	27,032	35.5	0.7	-12.9	26,843	30,834	39,311	37,670	29,695
Polk	860	17,007	19.8	27.9	11.0	13,297	11,981	14,182	15,832	14,857
Pope	820	39,021	47.6	36.4	35.1	28,607	21,177	23,291	25,682	26,547

continued

Table 1 (Continued)

Counties	1980 land area	Population								
		1980		Percent change						
	Square miles	Number	Per square mile	1970 to 1980	1960 to 1970	1970	1960	1950	1940	1930
Prairie	656	10,140	15.5	-1.1	-2.5	10,249	10,515	13,768	15,304	15,187
Pulaski	767	340,613	444.1	18.6	18.2	287,189	242,980	196,685	156,085	137,727
Randolph	656	16,834	25.7	33.1	1.0	12,645	12,520	15,982	18,319	16,871
St. Francis	639	30,858	48.3	0.2	-7.5	30,799	33,303	36,841	36,043	33,394
Saline	725	53,161	73.3	47.2	24.7	36,107	28,956	23,816	19,163	15,660
Scott	897	9,685	10.8	18.0	12.5	8,207	7,297	10,057	13,300	11,803
Searcy	668	8,847	13.2	14.4	-4.8	7,731	8,124	10,424	11,942	11,056
Sebastian	535	95,172	177.9	20.1	18.8	79,237	66,685	64,202	62,809	54,426
Sevier	560	14,060	25.1	24.7	11.0	11,272	10,156	12,293	15,248	16,364
Sharp	606	14,607	24.1	77.4	30.3	8,233	6,319	8,999	11,497	10,715
Stone	606	9,022	14.9	31.9	8.6	6,838	6,294	7,662	8,603	7,993
Union	1,053	48,573	46.1	6.9	-8.3	45,428	49,518	49,686	50,461	55,800
Van Buren	709	13,357	18.8	61.4	14.5	8,275	7,228	9,687	12,518	11,962
Washington	951	100,494	105.7	29.9	38.7	77,370	55,797	49,979	41,114	39,255
White	1,040	50,835	48.9	29.5	19.9	39,253	32,745	38,040	37,176	38,269
Woodruff	592	11,222	19.0	-3.0	-17.1	11,566	13,954	18,957	22,133	22,682
Yell	931	17,026	18.3	19.8	19.0	14,208	11,940	14,057	20,970	21,313

Source: U.S. Department of Commerce, Bureau of the Census, *United States Census of Population: 1980*, Vol. 1, *Characteristics of the Population*, Ch. A, *"Number of Inhabitants,"* pt. 5, Arkansas, p. 8.

Figure 1

ARKANSAS POPULATION DENSITY
1930

IN 1930, ARKANSAS HAD A TOTAL POPULATION OF 1,854,482 AND AN AVERAGE POPULATION DENSITY OF 35.6 PER SQUARE MILE. IN 30 COUNTIES, THE POPULATION DENSITY EQUALLED OR WAS GREATER THAN THE STATE AVERAGE. PULASKI COUNTY HAD THE GREATEST DENSITY AT 179.6 WHILE NEWTON HAD THE LOWEST AT 12.8. SEBASTIAN COUNTY AT 101.7 WAS THE ONLY OTHER WITH A DENSITY GREATER THAN 100. FOUR OTHER COUNTIES HAD DENSITIES LESS THAN 15: SCOTT AND STONE BOTH AT 13.2, MONTGOMERY AT 13.9, AND PERRY AT 14.

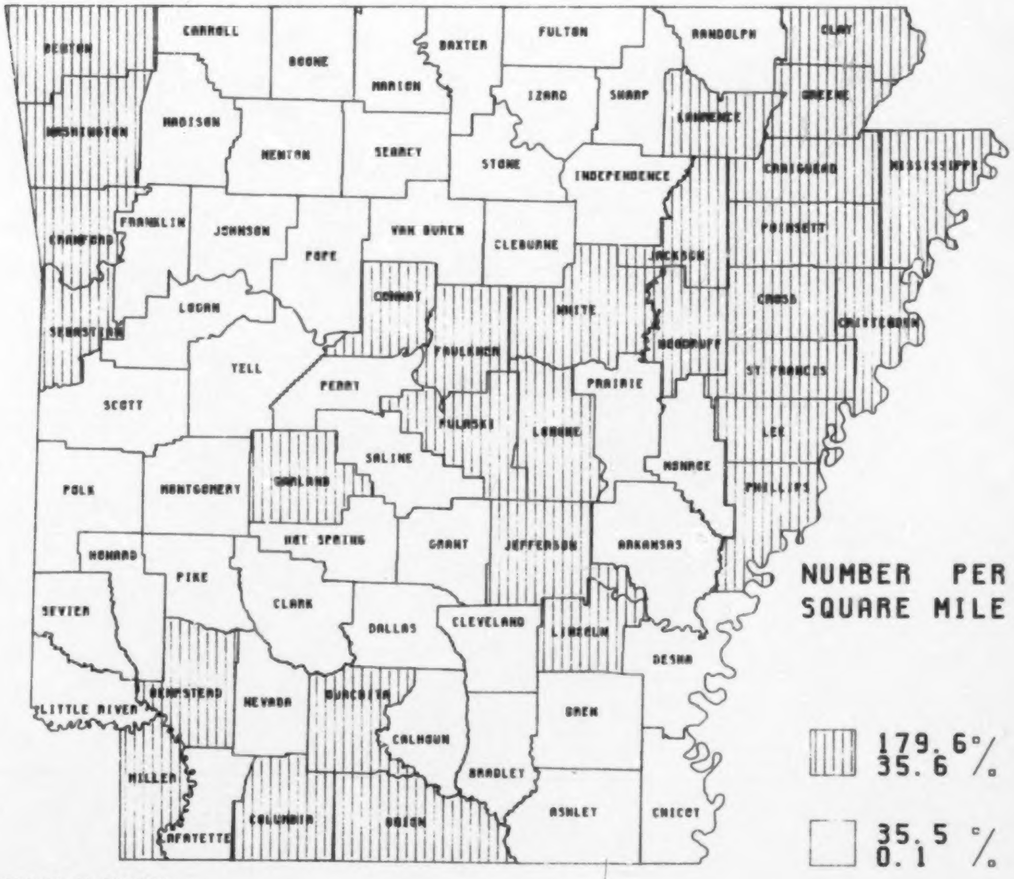

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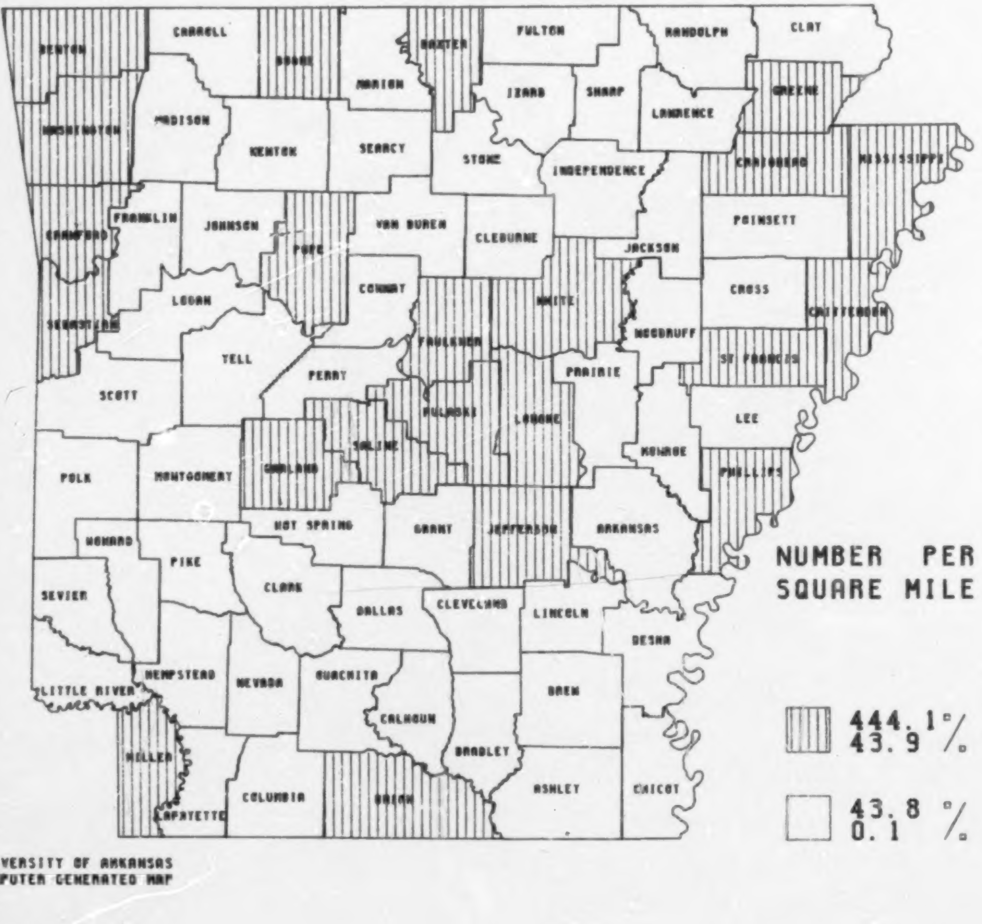
Figure 2

ARKANSAS POPULATION DENSITY
1980

IN 1980, ARKANSAS HAD A TOTAL POPULATION OF 2,286,435 AND AN AVERAGE POPULATION DENSITY OF 43.9 PER SQUARE MILE. IN 22 COUNTIES, THE POPULATION DENSITY EQUALLED OR EXCEEDED THE STATE AVERAGE. PULASKI COUNTY HAD THE GREATEST DENSITY AT 444.1 WHILE NEWTON HAD THE LOWEST AT 9.4. FOUR OTHERS HAD DENSITIES GREATER THAN 100: GARLAND AT 107.4, JEFFERSON AT 102.7, SEBASTIAN AT 177.9, AND WASHINGTON AT 105.7. EIGHT OTHERS, CALHOUN AT 9.7, CLEVELAND AT 13.1, MADISON AT 13.6, MONTGOMERY AT 10.., PERRY AT 13.2, SCOTT AT 10.8, SEARCY AT 13.2, AND STONE AT 14.9, HAD LESS THAN 15.



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SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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ARKANSAS ECONOMY: Q-III, 1982

Phillip H. Taylor
Director, Bureau of Business
and Economic Research
University of Arkansas, Fayetteville

The mixed performance of the Arkansas economic indicators in the third quarter seemed to indicate the extended recession was nearing an end. While the remainder of 1982 has offered little improvement, developments in early 1983, both within Arkansas and nationally, reflect the beginning of economic recovery. It remains too early to ascertain the rate of growth for 1983, but steady improvement in the level of activity should continue throughout the year.

Total personal income remained virtually unchanged between the second and third quarters. To a large extent, the distressed nature of the agricultural sector offset modest improvements elsewhere.

Perhaps the most promising developments in the economy were those in both residential and nonresidential construction. For the second consecutive quarter, residential construction activity increased and with continued declines in the interest rate, the outlook is even brighter for 1983.

The rate of improvement in the economy is expected to vary a great deal across the state. Prospects for the agricultural sector are not expected to improve much during the year (1983). Similarly, those areas heavily dependent upon the aluminum industry may lag behind in the recovery unless the automobile industry enjoys a substantial increase in demand. However, the southern regions of Arkansas should enjoy the benefits of a recovering national home market and those areas producing various consumer durables should see increases in employment and income throughout 1983.

Declines in world petroleum prices and lower interest rates should prove to be very positive factors leading to recovery and also, both factors should help the profit picture for farmers. Similarly, recent experiences indicating lower rates of inflation should enhance the confidence of both businesses and consumers. Overall, the stage now appears to be set for a steady, but perhaps slow, improvement in the economic climate extending well into 1983.

EMPLOYMENT

Base Year to Date and Quarterly Changes in Total Employment, Arkansas and United States

Seasonally adjusted, percent. Base Year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 38.4	+ 1.7	- 1.3	- 1.7	+ 0.6
United States	+ 34.1	- 0.6	- 0.5	+ 0.2	+ 0.0

Employment by Major Industry Group in Arkansas, and Unemployment Rate, Arkansas and United States

Seasonally adjusted, units

TIME PERIOD	EMPLOYMENT				UNEMPLOYMENT RATE	
	Wage and Salary		Agricultural	Total	Arkansas[1]	United States[1]
	Manufacturing	Nonmanufacturing				
1975	175,500	444,500	61,000	776,700	9.5	8.5
1976	187,300	445,100	65,600	794,000	7.1	7.7
1977	208,900	483,400	62,800	837,700	6.6	7.1
1978	216,500	507,350	61,250	868,400	6.3	6.1
1979	217,750	526,700	65,800	904,000	6.2	5.8
1980	210,050	540,400	65,100	896,200	7.6	7.1
1981	212,100	536,150	64,100	910,150	9.1	7.6
1982, Q-I	199,550	523,820	64,600	922,470	8.8	8.8
Q-II	196,450	521,650	63,525	906,620	9.5	9.1
Q-III	193,700	525,750	62,650	912,100	9.6	9.9

[1] Actual Rate. Percentage

PERSONAL INCOME

Base Year to Date and Quarterly Changes in Personal Income, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 358.1	+ 0.8	- 1.2	+ 3.4	+ 0.2
United States	+ 310.7	+ 1.4	+ 0.6	+ 1.7	+ 1.7

Personal Income in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981	1982
Quarter								
Jan-Mar	2,070	2,508	2,837	3,118	3,698	4,002	4,474	4,685
Apr-Jun	2,373	2,667	2,948	3,208	3,681	3,975	4,548	4,843
Jul-Sep	2,391	2,626	2,984	3,315	3,805	4,160	4,704	4,851
Oct-Dec	2,368	2,676	3,070	3,406	3,929	4,265	4,740	
Annual	9,202	10,477	11,839	13,047	15,113	16,402	18,466	

VALUE ADDED BY MANUFACTURE

Base Year to Date and Quarterly Changes in Manufacturing, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 282.8	- 4.3	+ 2.9	+ 0.3	- 0.3
United States	+ 38.2	- 3.5	- 3.1	- 1.8	- 0.7

Value Added by Manufacture in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	981.0	1,099.3	1,158.2	1,326.7	1,416.1	1,435.8	1,534.0	1,500.7	1,400.4
Apr-Jun	975.4	1,103.2	1,226.4	1,377.1	1,407.8	1,328.3	1,506.7	1,505.2	1,482.2
Jul-Sep	1,009.3	1,134.7	1,234.1	1,344.0	1,369.4	1,325.2	1,523.6	1,500.6	1,604.5
Oct-Dec	1,074.1	1,103.1	1,248. 6	1,325.7	1,362.1	1,374.7	1,458.0		
Annual	4,039.8	4,440.3	4,867.3	5,373.5	5,555.4	5,464.0	6,122.3		

CASH RECEIPTS FROM FARM MARKETINGS

Base Year to Date and Quarterly Changes in Cash Receipts, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 254.6	- 31.6	+ 21.6	+ 10.9	- 17.5
United States	+ 235.5	- 2.2	+ 1.4	+ 1.3	- 0.8

Cash Receipts from Farm Marketings in Arkansas

Seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	529,492	565,575	686,105	915,305	931,511	961,705	823,428	897,693	706,020
Apr-Jun	584,346	740,457	703,457	705,441	719,506	658,942	909,757	995,460	719,665
Jul-Sep	609,324	621,624	578,357	760,304	762,307	879,485	1,011,547	821,433	633,983
Oct-Dec	508,651	497,214	500,169	584,144	663,304	570,684	692,029		
Annual	2,231,831	2,425,367	2,468,088	2,965,194	3,081,628	3,070,816	3,436,761		

ACTIVITY OF ARKANSAS SAVINGS AND LOAN ASSOCIATIONS

Base Year to Date and Quarterly Changes in Activity of Arkansas S & L Associations

Not seasonally adjusted, percent (based on CONSTANT DOLLARS), Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Total New Loans	+ 68.5	+ 2.3	+ 26.4	+ 44.1	- 4.5
Net New Savings	- 36.2	+ 289.9	- 5.4	+ 4.1	- 9.9

Economic Activity of Arkansas Savings and Loan Associations

Not seasonally adjusted, Thousands of dollars

TIME PERIOD	TOTAL NEW LOANS		NET NEW SAVINGS	
	Current $	1967 $	Current $	1967 $
1975	413,366	255,678	309,304	192,119
1976	606,400	355,280	393,300	231,050
1977	815,800	448,590	405,000	223,492
1978	729,300	373,700	416,900	213,610
1979	625,900	290,560	436,830	204,525
1980	504,700	204,275	287,600	115,580
1981	360,800	132,970	20,000	7,240
1982 Q-I	102,600	36,250	36,900	13,040
1982 Q-II	150,100	52,250	39,000	13,570
1982 Q-III	146,100	49,900	35,800	12,225

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Base Year to Date and Quarterly Changes in Total and Internal Tonnages

Not seasonally adjusted, percent, Base = Ave. Qtr. 1971

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Total	+ 116.2	- 9.1	+ 6.1	- 25.4	+ 5.4
Internal	- 12.8	- 20.9	- 52.6	+ 84.2	+ 54.7

Freight Traffic
Arkansas River Commerce

Not seasonally adjusted, Thousands of short tons

TIME PERIOD	TRAFFIC TONNAGES*			
	INBOUND	OUTBOUND	INTERNAL	TOTAL
1975	1,440	870	2,465	5,204
1976	1,988	1,663	3,033	7,078
1977	2,841	2,339	3,463	9,138
1978	2,595	3,899	3,170	10,216
1979	2,026	3,456	2,932	8,926
1980	1,611	4,643	2,408	9,133
1981	1,564	5,684	1,741	9,446
1982 Q-I	372	1,687	186	2,505
1982 Q-II	390	1,002	342	1,870
1982 Q-III	384	984	529	1,971

*Total tonnage includes "through traffic"—shipments which originate and terminate outside the Arkansas River Commerce Area.

LABOR FORCE ESTIMATES
November 1982, not seasonally adjusted

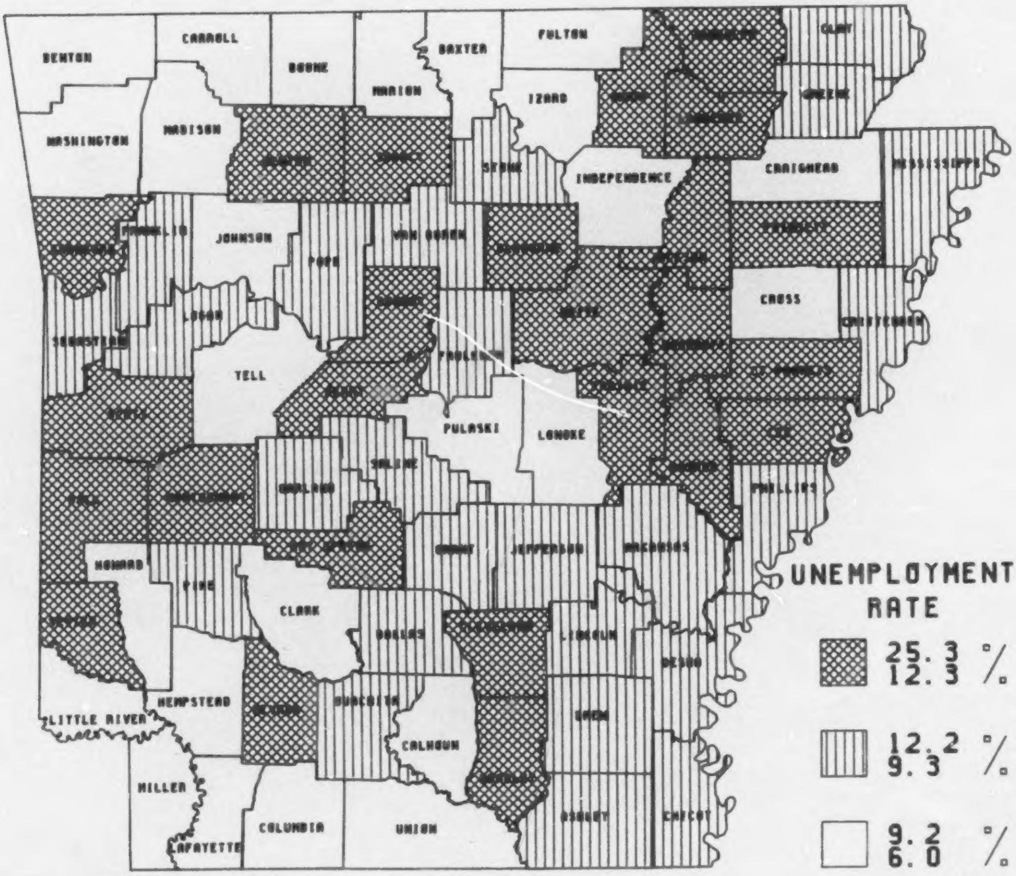
State and SMSA's	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	110,855,000	10.4	99,379,000
STATE OF ARKANSAS	1,038,000	10.1	933,400
Fayetteville-Springdale SMSA (Benton & Washington Counties)	82,250	7.1	76,400
Fort Smith SMSA (Crawford & Sebastian Counties in Arkansas and LeFlore & Sequoyah Counties in Oklahoma)	85,850	11.4	76,050
Little Rock-North Little Rock SMSA (Pulaski & Saline Counties)	201,300	7.8	185,600
Pine Bluff SMSA (Jefferson County)	40,575	10.2	36,450

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	12,675	9.3	11,500	Lee	5,200	15.4	4,400
Ashley	11,400	10.3	10,225	Lincoln	4,150	11.4	3,675
Baxter	10,050	8.7	9,175	Little River	5,650	8.0	5,200
Benton	36,600	8.3	33,550	Logan	7,725	11.3	6,850
Boone	11,850	7.8	10,925	Lonoke	16,425	7.8	15,150
Bradley	4,950	12.6	4,325	Madison	6,075	7.4	5,625
Calhoun	2,475	8.1	2,275	Marion	6,125	6.5	5,725
Carroll	8,350	7.8	7,700	Miller	15,400	8.6	14,075
Chicot	7,400	12.2	6,500	Mississippi	26,325	11.1	23,400
Clark	10,925	7.3	10,125	Monroe	5,250	22.9	4,050
Clay	9,100	11.0	8,100	Montgomery	3,350	12.7	2,925
Cleburne	6,375	13.7	5,500	Nevada	4,225	15.4	3,575
Cleveland	1,975	17.7	1,625	Newton	2,025	18.5	1,650
Columbia	14,300	8.2	13,125	Ouachita	12,925	11.0	11,500
Conway	9,000	20.6	7,150	Perry	3,225	17.8	2,650
Craighead	31,125	9.2	28,250	Phillips	13,675	11.2	12,150
Crawford	16,525	12.6	14,450	Pike	4,175	11.4	3,700
Crittenden	24,250	10.6	21,675	Poinsett	10,775	16.0	9,050
Cross	8,875	8.7	8,100	Polk	6,525	18.0	5,350
Dallas	4,050	9.9	3,650	Pope	19,650	10.9	17,500
Desha	7,800	10.3	7,000	Prairie	3,750	13.3	3,250
Drew	8,400	10.4	7,525	Pulaski	173,650	7.5	160,650
Faulkner	22,850	9.5	20,675	Randolph	7,025	14.2	6,025
Franklin	6,825	9.9	6,150	St. Francis	12,725	12.6	11,125
Fulton	2,800	8.9	2,550	Saline	27,650	9.8	24,950
Garland	29,275	11.8	25,825	Scott	3,475	12.9	3,025
Grant	4,250	10.6	3,800	Searcy	2,975	14.3	2,550
Greene	14,050	11.2	12,475	Sebastian	42,050	11.5	37,200
Hempstead	11,800	7.2	10,950	Sevier	6,125	12.7	5,350
Hot Spring	10,250	19.3	8,275	Sharp	4,200	12.5	3,675
Howard	7,925	6.0	7,450	Stone	3,475	10.1	3,125
Independence	16,850	8.9	15,350	Union	25,000	7.4	23,150
Izard	4,175	8.4	3,825	Van Buren	4,150	11.4	3,675
Jackson	9,175	15.8	7,725	Washington	45,650	6.1	42,850
Jefferson	40,575	10.2	36,450	White	24,800	13.3	21,500
Johnson	8,200	7.3	7,600	Woodruff	4,650	25.3	3,475
Lafayette	3,700	8.1	3,400	Yell	8,275	7.9	7,625
Lawrence	8,350	15.6	7,050				

Source: The Research and Statistics Section, Arkansas Employment Security Division

LABOR FORCE ESTIMATES
NOVEMBER 1982

IN NOVEMBER, ARKANSAS' CIVILIAN LABOR FORCE FELL BY 18,800 TO TOTAL 1,038,000. TOTAL EMPLOYMENT DECREASED 21,200 TO TOTAL 933,400. UNEMPLOYMENT ROSE 2,400 TO TOTAL 104,600. OF THE 75 COUNTIES, HOWARD HAD THE LOWEST UNEMPLOYMENT RATE AT 6.0 PERCENT AND WOODRUFF THE HIGHEST AT 25.3 PERCENT. MOREOVER THE UNEMPLOYMENT RATES IN 45 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE SMSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 7.1 PERCENT AND FORT SMITH HAD THE HIGHEST RATE AT 11.4 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE PINE BLUFF SMSAS WERE 7.8 AND 10.2 PERCENT, RESPECTIVELY.



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THE MINERAL INDUSTRY OF ARKANSAS IN 1982

Arkansas' nonfuel mineral production in 1982, consisting of 2 metallic and 12 nonmetallic minerals, was valued at $247 million, according to estimates by the Bureau of Mines, U.S. Department of the Interior. The State was ranked 25th in the Nation in value of nonfuel minerals produced. Arkansas continued its role as a major producer of several of those minerals, ranking at or near the top in the production of bauxite and bromine, and was the main supplier of oilstones and whetstones.

Aluminum Co. of America (Alcoa) laid off 45 employees from its alumina operations at Bauxite on November 29. Also in November, Reynolds Metals Co. announced that, unless there is a sudden increase in the demand for aluminum, it will close its Hurricane Creek alumina operation in August 1983.

On June 15, Union Carbide closed its Hot Springs vanadium mine and mill until July 1983 because of reduced vanadium demand.

Dow Chemical Co. resumed construction of its 120-million-pound-per-year calcium bromide solution plant in Magnolia. Production at the plant will begin in early 1985.

By year end, Arkansas Lime Co., near Batesville, had nearly completed its $175 million improvement program at the Limedale quarry and plant, which included a new electronic scale, a new quality control laboratory and equipment, and an additional roller mill. The firm also updated its narrow gauge railroad, bridges, and stockpile tunnel and conveyor. Arkansas Lime's payroll totaled 120 employees.

Also, Arkansas Lime Co., on contract, operated limestone quarries at Myersville, Independence County, owned by Reynolds Metals Co., and at Love Hollow, Izard County, owned by Alcoa. The Reynolds operation was completely shut down February 28, with the loss of 21 jobs, and Love Hollow operated at 50% of normal schedule.

Table 1
Nonfuel mineral production in Arkansas[1]

Mineral		1981 Quantity	1981 Value (thousands)	1982[p] Quantity	1982[p] Value (thousands)
Bauxite	thousand metric tons	1,242	$22,185	602	$14,800
Clays	thousands short tons	880	9,333	614	5,179
Gem stones		NA	200	NA	250
Lime	thousand short tons	149	8,102	151	8,621
Sand and gravel	do	[p]12,742	[p]40,336	8,510	25,000
Stone:					
Crushed	do	13,834	47,260	12,680	45,200
Dimension	do	7	411	5	290
Combined value of abrasives, barite, bromine, cement, gypsum, talc (soapstone), tripoli, and vanadium		XX	153,720	XX	147,864
Total		XX	281,548	XX	247,204

[p] Preliminary. NA Not available. XX Not applicable.

[1] Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

NL Industries, Baroid Division, permanently closed its barite operations at Magnet Cove in mid-summer. Milchem, Inc., conducted shakedown tests at its Fancy Hill barite plant and some ore had been stockpiled; however, by year end most employees were laid off and the operation shut down indefinitely.

The first Arkansas Mining and Minerals Industry Week meeting and mine tour was held September 23-24 in Russellville. A second is planned for September 1983 to publicize the importance of the mining industry to the State's economy.

Source: Adapted from a Mineral Industry Surveys released by the Intermountain Field Operations Center, Denver, Colorado, January 1983.

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RESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Residential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 252.0	- 7.6	- 23.6	+ 57.5	+ 13.1
United States	+ 236.6	- 20.8	- 12.9	+ 48.8	+ 5.5

Residential Construction Contracts in Arkansas

Seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	84,388	116,379	160,861	220,739	205,119	144,050	176,180	115,590	106,500
Apr-Jun	85,740	117,164	173,558	236,915	153,917	137,600	159,750	153,850	167,700
Jul-Sep	98,557	122,732	182,210	227,633	193,364	177,450	138,360	174,250	189,700
Oct-Dec	104,656	134,927	217,222	236,718	154,130	185,450	158,510		
Annual	373,441	491,202	733,851	922,005	706,530	664,550	632,800		

NONRESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Nonresidential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-III	1981 Q-III thru 1981 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III
Arkansas	+ 99.9	+ 33.8	+ 21.1	- 43.2	+ 31.6
United States	+ 203.4	- 11.6	- 12.6	+ 19.5	+ 5.0

Nonresidential Construction Contracts In Arkansas

Not seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982
Quarter								
Jan-Mar	79,225	43,591	57,486	72,851	88,988	72,300	90,500	96,300
Apr-Jun	67,424	93,906	63,726	60,479	109,976	91,200	72,700	54,700
Jul-Sep	45,566	67,913	67,632	90,471	70,296	91,900	59,400	72,000
Oct-Dec	89,446	79,004	76,866	69,041	112,549	99,700	79,500	
Annual	281,661	284,414	265,710	292,842	381,809	355,100	302,100	

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JOHN P. OWEN
Dean, College of Business Administration
PHILLIP H. TAYLOR
Director, Bureau of Business and Economic Research
JOSEPH A. ZIEGLER
Senior Research Associate

HARRY FRENCH
Associate Economist
MARY S. HIRSCH
Instructor/Systems Analyst
MARGARET GAYLE
Research Assistant
LINDEL TOWNSLEY, JR.
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Form requirements for manuscripts include double spaced originals with each chart or graph prepared in ink (camera ready) on a separate sheet. Manuscripts and all inquiries should be addressed to Editor, *Arkansas Business and Economic Review*, Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Fayetteville, Arkansas 72701, Telephone (501) 575-4151.

ROBOT SYSTEMS FOR THE FACTORY

Phillip W. Balsmeier
Associate Professor of Management
Louisiana Tech University

James M. Semerad
Software Engineer
General Dynamics

INTRODUCTION

Technological innovations in electronics and robotics are operating to revamp the manufacturing environment. The changes will help revitalize deteriorating factories and productivity. Developments in robot design and application are enhancing jobs and transforming factory floors.

The Robot Institute of America defines a robot as a programmable multifunction manipulator designed to move material, parts, tools, or specialized devices through variable programmed motions for the performance of a variety of tasks. Key terms in this definition are programmable and variety. The American robot industry accounted for $100 million in robot sales in 1980 and projections for 1990 exceed $2 billion. Japanese robot sales are projected to increase from $392 million to $5 billion over this same period. Robot sales of European countries are expected to increase dramatically. The promising robot market is attracting many companies to produce and market robots (McElroy, 1982).

Application of robots will expand and become more effective as robot technology emerges. Current applications focus on certain production tasks in assembly, materials handling, and packaging operations (Fitch and Bryce, 1981). Functional uses of robots will increase as techniques in bin-picking, pattern recognition, and sensory response are perfected. An average robot is projected to have a computer, handle small payloads, and be marketed as a component of a flexible automation system. The flexible automated robot system could be adapted to a singletask or a multitask environment where dozens of robots and equipment interact in an automated factory. (McElroy, 1982).

The ultimate design of a robot assumes a configuration compatible with the processes it automates. Distinguishing characteristics as defined by the Robot Institute of America are that the design is programmable and can perform a variety of tasks. The trend in robot development is in exploiting the versatile characteristics of robots.

ROBOT ARCHITECTURE

Distinguishing traits are observable in the flux of robots emerging in factories. As robotics permeates industry and as new technology is incorporated, new forms of robots are likely to emerge. Three major components important to robot design are the power source, manipulator, and control unit. These components are illustrated in Figure 1.

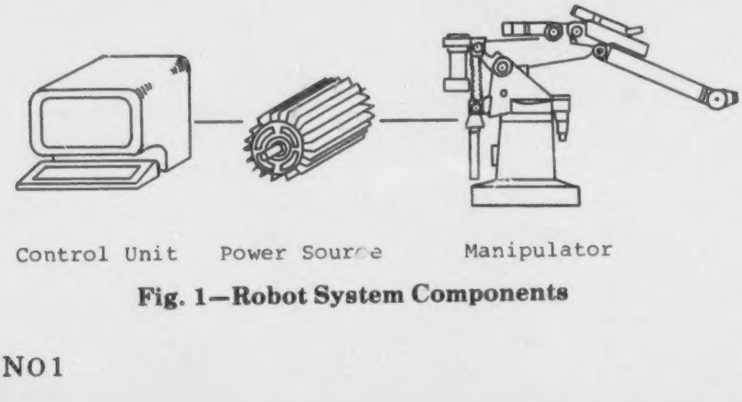

Fig. 1—Robot System Components

Power Source

The basic source of power for a robot is electricity. Electric, pneumatic, and hydraulic power drive systems may be incorporated to power the robot. These alternatives to robot power are utilized by various robots found in the manufacturing environment.

Different factory processes require different robot capabilities. A hydraulic drive mechanism is often employed where heavy payloads are encountered in a process. Hydraulic cylinders and motors can be compact and offer high power and force capabilities. Pneumatic devices are less popular because of poor position and speed control. With small payload applications, electric drive devices are frequently utilized. This source offers precision position control and accuracy. Electric drives have been demonstrated to process materials in excess of three hundred pounds. A trend in robot design emphasizes electric drives and load capacities of less than seventy-five pounds (Jablonowski, 1982).

The power source plays a vital role in robot design. Enough power must be provided in an efficient manner to drive the robot through a process. The robot drives should provide smooth and efficient operation without undue maintenance.

Manipulator

The manipulator is the mechanical unit driven by the power source. It typically consists of a hand to grip a workpiece, an arm to move the hand, and a wrist with two or more articulations as illustrated in Figure 2. Design of the manipulator will determine major performance limitations (Heer, 1981).

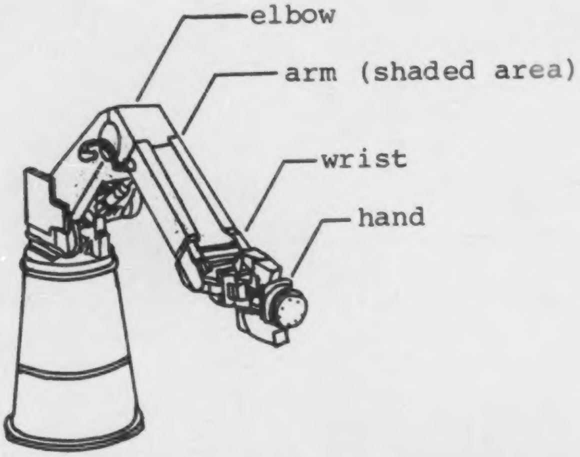

Fig. 2—Basic Manipulator Components

Manipulators are frequently described by the positioning geometry of the arm. To be able to reach any point in space, three degrees of freedom are necessary. Basic robot positioning geometries are illustrated in Figure 3 (Jablonowski, 1982). The hand of the manipulator is often referred to as the end effector and is used for welding, painting, gripping, etc. The end effector is maneuvered by the various articulations of the wrist. Wrist articulations and end effector capabilities determine many of the tasks a manipulator can perform. Manipulators have been configured in many different forms but are only as effective and versatile as the end effector.

Robot manipulators normally employ three to six axes or degrees of freedom. Characteristics of a manipulator are

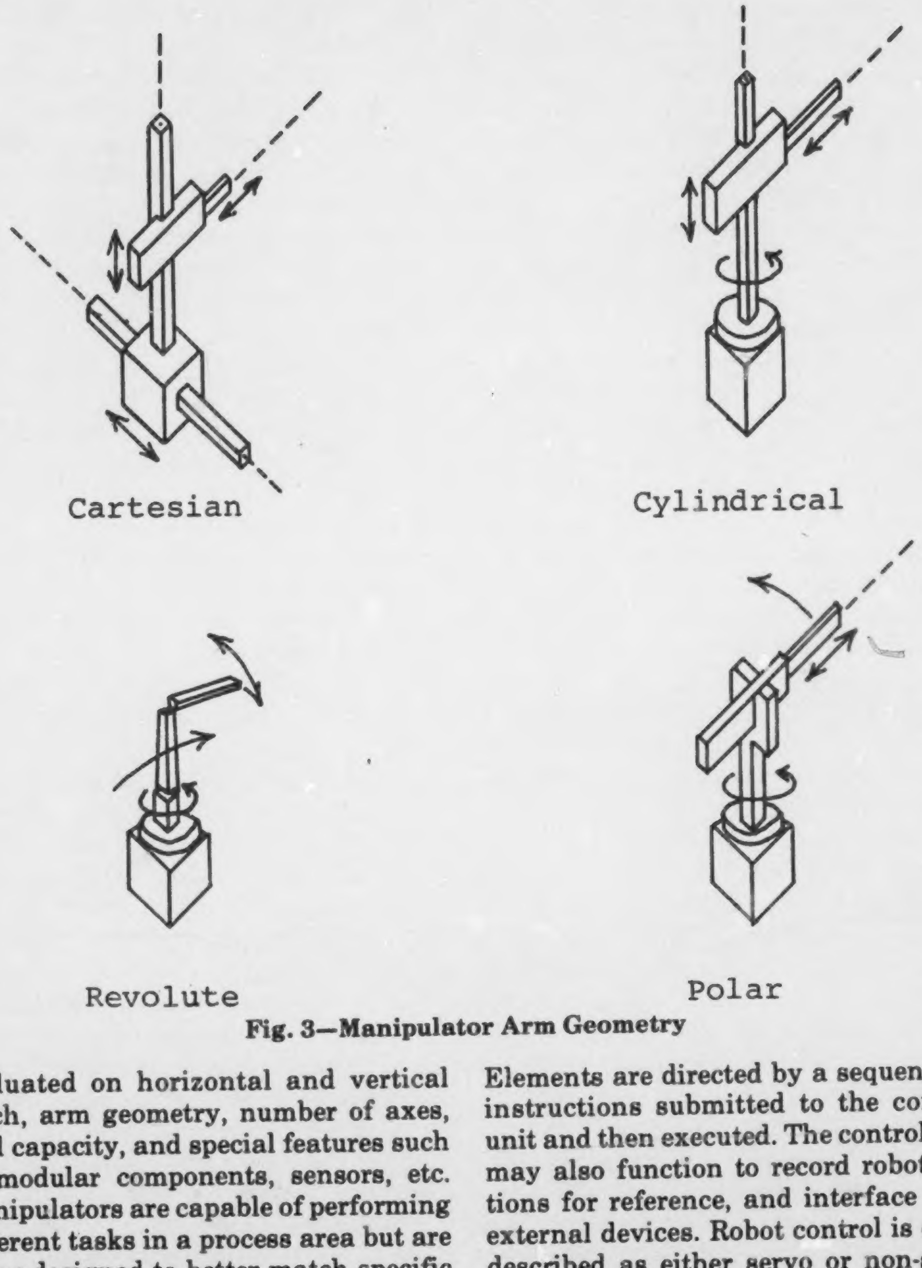

Fig. 3—Manipulator Arm Geometry

evaluated on horizontal and vertical reach, arm geometry, number of axes, load capacity, and special features such as modular components, sensors, etc. Manipulators are capable of performing different tasks in a process area but are being designed to better match specific production processes (Jablonowski, 1982).

Control Unit and Robot Control

A major utility for the programmable robot to perform a variety of tasks is the control unit. This component directs the motions of each element of the robot. Elements are directed by a sequence of instructions submitted to the control unit and then executed. The control unit may also function to record robot motions for reference, and interface with external devices. Robot control is often described as either servo or non-servo controlled (Callahan, 1982).

Non-Servo Control. Non-servo controlled robots are distinguished by the absence of a self-correction or feedback capability. The manipulator can move to within exact end positions on each axis. Predetermined paths are limited by mechanical stops. When limit switches are incorporated, an indexible stop can be inserted or withdrawn along an axis. Non-servo controlled manipulator operation is the result of executing a single problem in a sequence of steps using pneumatic logic sequencers, stepping switches, or electronic programmable controllers (Ardayfio and Pottinger, 1982).

Servo Control. Servo controlled robots incorporate feedback devices to monitor the position of the manipulator. The sensing capability of the feedback device enables the end effector to be positioned anywhere within the reach envelopment of the robot. This control function may be performed by microprocessors, diode matrix boards, or electronic sequencers. A disk, tape, or solid state storage device records the motions of the robot in digital form for future operation. Two classifications of operation for servo controlled robots are point-to-point control and continuous path control (Ardayfio and Pottinger, 1982).

Under point-to-point control each manipulator joint moves independently to the next position. This method of control would be used for pick and place applications. Each manipulator joint uses an independent position servo. Three methods of controlling point-to-point control are as follows (Ardayfio and Pottinger, 1982):

Sequential joint control—activates one joint at a time while other joints are immobilized. Simplifies control of multijoint manipulators and highly modularized systems.

Uncoordinated joint control—no joint movement coordination but each joint waits until all joints reach a final position before proceeding to the next step. End effector path and velocity are unpredictable.

Terminally coordinated joint control—all joints attain their final position simultaneously. Most useful method where only the final manipulator position is important.

Programming a robot for point-to-point control requires only that the sequence of manipulator final positions be stored in a memory device.

Continuous path control is utilized when a controlled predictable path of the end effector is important. This method may be important for spray painting, welding, and polishing applications. Joint movements are interpolated simultaneously to give a coordinated joint motion. Three categories of continuous path control are based on the amount of information used for path control (Ardayfio and Pottinger, 1982).

Basic servo control—calculation of drive signal is based on past and present path tracking error. A stored representation of the path to follow may be stored by the controller.

Preview control—uses past and present tracking error plus knowledge of future path position.

Trajectory circulation—controller has a complete description of the path the manipulator should follow from one point to another.

Since recording a continuous path requires large amounts of memory, disk and tape storage devices are often utilized. Continuous path controlled robots are often programmed by physically grasping the robot and leading it through the desired path.

Non-servo controlled robots are being supplanted because of the greater versatility of servo controlled robots. Sensing functions are enhancing the control capabilities. The versatility of servo controlled robots can better utilize the services of sensors to greatly enhance robot capabilities (Callahan, 1982).

ROBOT PROGRAMMING

The basis for all robot programming

techniques is to generate a programming language. The task of programming a robot for an application should be simple, free from error, and provide efficient operation. Methods of programming robots will become less cumbersome with greater robot language sophistication.

The evolution toward more sophisticated robots has created three tiers of programming languages—joint manipulator languages, manipulator model languages, and world model languages. These three levels represent a hierarchy of robot programming from instructing each robot joint to merely specifying the manufacturing process or operation. The sophistication of the world model languages is built on the foundation of the joint manipulator languages (Ardayfio and Pottinger, 1982).

Joint Manipulator Language

Joint manipulator languages are directed toward the control of each individual robot joint and sensor. This level of programming is utilized for most nonservo controlled robot command languages. Instructions focus on controlling and coordinating robot movements. Programming on this level requires more detailed understanding of robot hardware operation. Principles of robot programming on this level provide the foundation for a hierarchical robot software system (Will and Grossman, 1975).

Manipulator Model Language

Many industrial robots currently employ manipulator model languages for control purposes. This approach focuses on guiding the end effector from point to point through three dimensional, cartesian coordinate space. The manipulator is instructed what to do with the end effector and not necessarily how to do it. Users are responsible for generating explicit instructions to control robot movements. Explicit instructions for manipulator model languages are generated to control robot activities using teaching by showing techniques and textual language programming (Grossman, 1982).

Teaching by Showing. Methods of robot control employing teaching by showing techniques require an operator to lead the machine through the task. The operator may physically grasp the manipulator and escort it through the motions or position the robot utilizing a tech pendant. These techniques enable operators to program robots without perfect knowledge of robot programming languages (Motiwalla, 1982).

The manual lead through method utilizes a special attachment for the manipulator wrist or a special teaching arm to physically move the robot arm. Switches on the control panel are set by the operator to record movements of the manipulator on computer storage devices. The operator then manually leads the robot arm through the desired operation. As the manipulator is moved servo mechanisms of the manipulator transmit continuous position date to an interpreter. The interpreter encodes the electronic signals into a computer program. As the program is generated it is memorized by a storage device. Manual lead through does not require that the operator have knowledge of a robot language but there is no effective procedure to edit a program (Motiwalla, 1982).

A teach pendant is frequently used to facilitate programming industrial robots. The pendant is often a handheld, pushbutton controlled device. Control panel switches are set for teach mode, then the pendant is operated to control and position the manipulator. This technique requires that only the end states of a path be recorded by pressing the record button on the pendant when the manipulator is properly positioned. An interpreter facilitates translating the signals into a program, editing the program, and inserting various routines.

Various algorithms are utilized to convert the discrete data into a continuous path. The teach pendant programming technique provides greater edit capabilities, but the programs are usually created on line and reduce production time (Motiwalla, 1982).

Teaching by showing techniques involve moving the manipulator about and recording positions of the robot manipulator. The manipulator is moved in the teach mode by means of a joystick, pushbutton control, manual control, etc. (Grossman, 1982). These methods provide a means to teach a robot without knowledge of programming languages but the sophistication of tasks which can be taught to a robot is limited.

Textual Language Programming. Textual language programs are computer programs in the classical sense geared toward robot applications. Textual programs form the syntax of robot control. This method of instructing a robot requires that the instructor understand how to write robot computer programs. As robot languages evolve, the task of writing a program for a process may be as simple as referencing a database and retrieving a Bill-of-Materials for the product.

In an effort to make textual languages and computer systems more user friendly, a hierarchically structured computer software control system is recommended. At the lowest level the computer is channeling signals to the robot manipulator components and to associated robot equipment. At the highest level the computer is executing a sequence of English-like commands. Intermediate levels are concerned with interpreting the higher level languages into equipment specific instructions. A hierarchical structured software system for robots as illustrated in Figure 4 is modular to take advantage of new developments in robotics (Motiwalla, 1982).

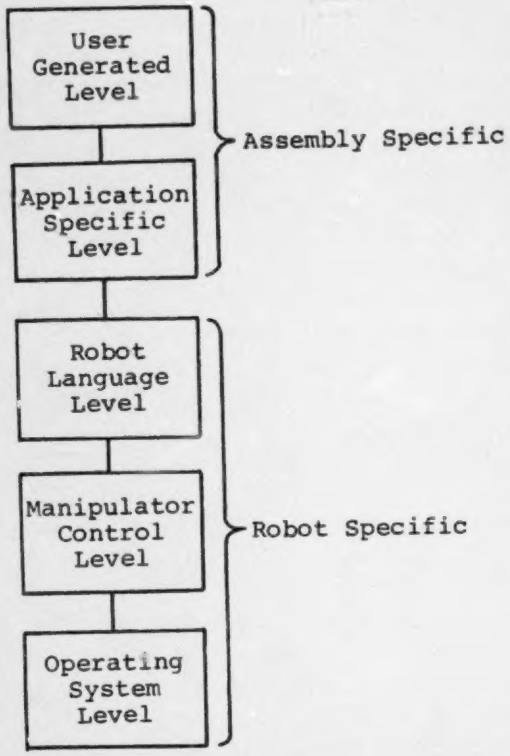

Fig. 4—Hierarchy of Robot Software

At the operating system level the language is targeted at the computer system hardware. This level is concerned with coordinating activities and communications within the system. The operating system manages memory, processor, device, and information functions. Compatibility with the robot language and support of utility routines is essential. Design of the operating system should permit incorporation of additional peripheral devices as needed and be adaptable to different robots (Madnick and Donovan, 1974).

Operation on the manipulator level requires translation of instructions into executable commands for the specific manipulator. Focus is placed on a particular manipulator's motor space and interpretation of sensor data. Programs for this level are extremely difficult to code and require a considerable number of statements (Will and Grossman, 1975). A detail of a manipulator level language is illustrated below.

```
i = o;
UNLESS SENSOR HIT DO:                                   /* TEST SENSOR */
  i = i + 1                                   /* NEXT POSITION INDEX */
  IF i > 6 THEN GO TO Sensor;
  MOVE ARM TO Trajectory (i);                         /* NEXT POSITION */
END;
```

A high level language is recommended to facilitate documentation and maintainability of programs (Lieberman and Wesley, 1977).

A more Englishlike programming language is utilized for programs on the robot language level. This level is concerned with specification of manipulator assembly motions as found in the following example:

```
OPEN FINGERS (.25);                                /* POSITION GRIPPER */
ROTATE GRIPPER TO (-90, 0, 0)                                  /* " " */
MOVE MANIPULATOR TO ORIGIN (grasp);                            /* " " */
CALL GRIPIT (3.5);                                     /* GRASP PART */
```

A programmer must be prepared to recognize specific arm and part geometries for the particular operation. Motions must be expressed in terms of geometric variables in three dimensional space. A text editor is often available for program debugging and file management. The robot language level is also programmed in a high level language and is the lowest level that the user may gain access to (Lieberman and Wesley, 1977; Motiwalla, 1982).

Application specific programming describes the assembly operations rather than the manipulator operations to perform. The assembly sequence is specified to include tool and part descriptions. Language on this level is directed more at assembly operations rather than robot operations, as illustrated in the following:

```
P/V AND POSITION THE NUT IN THE NEST OF THE FIXTURE
1090037 NUT, CAR RET TAB QTY 01
P/V, ORIENT AND POSITION THE BRACKET INTO THE FIXTURE
  WITH ITS TAB OVER THE NUT.
1115191 BRKT ASM. RAIL SUPPORT QTY 01
P/V SCREW AND LOAD DRIVER
```

This program segment is part of a bracket assembly operation. To assemble the bracket it is necessary to reference assembly objects such as parts and tools. Sophisticated sensors and a databank for recognizing much of the robot external environment is available. A production and inventory database similar to a material requirements planning (MRP) database may be incorporated to obtain part descriptions. The application specific level must be flexible to accommodate robot hardware and application modifications while maintaining integrity and friendliness toward the user (Lieberman and Wesley, 1977; Miller, 1982).

Work on developing a highly sophisticated Englishlike user generated level has been pursued by IBM, Stanford, and Purdue (Ardayfio and Pottinger, 1982). To perform an assembly operation, a programmer may simply specify the following:

SCREW THE BRACKET AND THE INTERLOCK TOGETHER

There is only speculation as to exactly what this level will represent once robotics incorporates more sophisticated tactile and proximity sensors, and is incorporated into CAD/CAM and MRP systems. The user generated level will cater to the user in specifying assembly specific processes (Motiwalla, 1982; Miller, 1982).

Robot Environment Model

Developments in artificial intelligence, computer systems, and computer sensors will determine the future of robot environment modeling. The user generated module of textual programming is dependent on developments in this area. This arena depends on a database of three dimensional geometric descriptions of the robot, workstation, and the parts and objects the robot will be manipulating (Hill, 1982).

In the process of executing a statement, the robot environment model database provides decision information for manipulator operation. In the course of compilation of a robot program statement, the data base provides information to determine optimum grasp points and manipulator trajectories. After a statement has been executed, the robot environment model is updated to reflect the resultant change from the statement. The current state of the assembly world is recorded in the database (Lieberman and Wesley, 1977).

The robot environment model enables the computer to simulate a program at compile time. The language is Englishlike and user friendly. Current speculation projects a future of robot environment modeling integrated with computer aided design, computer aided manufacturing, and material requirements planning systems (Fulton, 1981).

CONCLUSIONS

Factories of the future will value the robot as a vital link in the production process (Fulton, 1981). The basic components of a robot will increase to include sophisticated sensory devices. As the application of robots expands in the manufacturing environment, new forms of robots will emerge. A modular hardware and software system approach offers greater potential to incorporate new robot innovations over time. The complexity of robot programming and operation will unravel into user friendly robot programming techniques and languages. Large scale robot installations will interface with comprehension control centers for designing and creating robot applications. Process routines will be tested on a terminal before being tested on the robot. These changes will revitalize inefficient factory processes. The future of the robot is promising and yet unpredictable in light of rapid electronic and computer developments.

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A PENSION PLAN PRIMER

James T. Bristol
Assistant Professor of Accounting
University of Missouri—St. Louis

INTRODUCTION

Social Security was never meant to be the only income of the retiree. The designers of the Social Security system viewed it as but one leg of a "three-legged stool" of support during the retirement years. The other two legs are savings and private pension plans. More than one-third of the workers in the United States do not have the private pension plan. In 1978, 26.7 percent of all single persons and 7.3 percent of all married couples age sixty-five and older were below the official poverty level, with 38.7 and 17.3 percent respectively having inadequate money income to attain the estimated "lower budget" guidelines set by the Bureau of Labor Statistics. In 1979, 34.5 million workers, 70 percent of whom were full-time workers, were not covered by a pension plan.[1]

Those statistics are making news headlines today. When the time comes to consider a private pension plan, several very basic questions will be asked. This paper discusses some of those basic questions.

PENSION PLAN TYPES

There are two basic types of pension plans: defined-benefit and defined-contribution. A defined-benefit plan specifies either benefits received or how to determine those benefits, for example, a fixed percentage of the final year's pay. The employer's contribution under such plans is determined by an actuary on the basis of expected benefits.[2] In other words, the plan sponsor (employer) defines the amount to be received by each individual and then accumulates assets to pay that amount when due.

A defined-contribution plan specifies the contribution by the plan sponsor that is credited to each recipient's account, along with the interest earned on prior contributions. This may also include a profit sharing plan providing for varying contributions as the economy or business profits vary.

There are advantages and disadvantages to each. The defined-contribution plan has certain economic advantages, especially if it has a profit-sharing feature. A commitment that changes as economic conditions vary and allows contribution flexibility is easier to bear.

The defined-contribution plan, unlike the defined-benefit plan, has no contingent liability. Under the defined-contribution plan, the sponsor need only contribute the annual amount necessary to satisfy the sponsor's liability. The defined-benefit plan must provide the benefits for the full lifetime of all plan participants—the sponsor has a contingent liability in these plans until final payment to the last participant has been made. The defined-contribution plan is also exempt from minimum funding standards, actuarial reporting, and termination insurance under the Employment Retirement Income Security Act of 1974 (ERISA), as the act is now constituted.

VESTING

If a participant in either plan retires or leaves the firm for any reason, vested benefits are paid at retirement as a lump sum or to an insurance company for a life annuity. Vested benefits are those that cannot be denied the recipient and are not contingent upon remaining with the firm. From the employer's standpoint, the **promise** of vesting is an encouragement to remain with the firm. It is advantageous to the plan sponsor to delay full vesting as long as the law allows.

ERISA allows three vesting schedules:

Ten-year vesting provides that all pension rights automatically vest when the recipient has completed ten years service with the sponsor (not ten years in the plan). This option has the lowest administrative cost of the three but it could be more costly in terms of employees terminating after vesting. This option is used by most of the large plans in the United States.[3]

Five-to-fifteen-year vesting provides that at least 25 percent of accrued pension rights are vested at the end of the fifth year, 50 percent at ten years, and full vesting at the end of fifteen years. When the workers tend to change jobs more often, partial vesting is less expensive for the plan sponsor. This saving may outweigh the administrative expense of recording the partial vesting.

Rule-of-45 vesting protects older employees. It provides that participants must be vested with at least 50 percent of accrued pension benefits with five years service and when the participants' age and length of service sum to at least 45. Ten percent is added each year thereafter. Furthermore, an employee with 10 years service must be at least 50 percent vested and an additional 10 percent must vest for each year of service.[4]

These are minimum standards set forth in ERISA but the plan sponsor may elect to provide more rapid vesting. The IRS may require earlier vesting in the case of job discrimination or to prevent a practice of termination to circumvent vesting. "Earlier vesting is generally provided by the defined-contribution plans as compared with the defined-benefit plans."[5]

Another consideration is the disposition of vested benefits upon termination. The defined-contribution plan usually provides for distribution of vested accrued benefits shortly after termination. In most cases the terminated (not retired) employee may move the funds to a qualified plan without tax penalty. With a defined-benefit plan the recipient may have to wait many years before he collects his monthly benefits at retirement.[6] The benefits are frozen at termination usually without regard to inflation and the funds to pay those benefits remain with the former employer to earn investment returns.

A lump sum distribution at retirement may lead to money management difficulties for the retiree, such as a failure to convert a lump sum distribution to a monthly pension. It is difficult for an untrained person to manage such a large sum. Consideration must be given to length of remaining life, investment return, and how much capital may be withdrawn each month. The distribution may be used to pay creditors or pay off the mortgage, leaving only a small portion for the retiree to live on.

The male retiree will likely be married. Presently, women have an average life expectancy four years greater than men at age sixty-five[7] and the average age difference in married couples is four years.[8] This means that the wife of a retiree will need support for an average of eight years of widowhood. If a Joint Annuity (one that pays until the final party dies) is not purchased, a burden may be placed on either the plan, or on society, or on both.

A defined-contribution plan with a lump sum payout at retirement may purchase a smaller monthly benefit for a woman than for a man of the same age.[9] This is the result of using separate mortality tables for men and women (women live longer than men). The problem is eliminated if "unisex" mortality tables are used. A defined-benefit plan will normally provide the same monthly pension for women as for men.

BENEFITS

After the plan type decision has been made, the level of pension payments decision is next. Many firms consider Social Security (SS) when determining the level of pension payments. Coupling pension plans and SS allows retirement without a lowering of living standards. To this end a Target Replacement Ratio (TRR) of pre-retirement income is determined for each level of annual earnings. The TRR excludes such work-related expenses as union dues, commuter expense, and special work clothing. These expenses are estimated to be 6 percent of pre-retirement disposable income.[10]

The TRR excludes some taxes paid: SS income is not taxable, no SS tax is withheld, and current tax regulations provide for double exemptions for a retiree aged sixty-five and older. Table 1 shows TRR's for both single people and married couples. The ratios range from 0.86 at the lowest level of gross pre-retirement income ($6,500) to 0.55 at the highest level of income in the table ($50,000) for married couples and 0.79 to 0.51 respectively for single persons.

TABLE 1
Retirement Income to Maintain Preretirement Standard of Living Single Persons Retiring in 1980—For Selected Income Levels

Gross Preretirement Income	Preretirement Taxes		Disposable Income	Work Related Expense#	Savings & Investments		Net Preretirement Income
	Federal*	State & Local**					
$ 6,500	$ 906	$ 97	$ 5,497	$ 330	0%	$ 0	$ 5,167
10,000	1,785	223	7,992	480	3	240	7,272
15,000	3,259	444	11,297	678	6	678	9,941
20,000	5,055	728	14,217	853	9	1,280	12,084
30,000	8,926	1,429	19,645	1,179	12	2,357	16,109
50,000	18,921	3,328	27,751	1,665	15	4,163	21,923

Gross Preretirement Income	Postretirement Taxes##		Equivalent Retirement Income	
	Federal	State & Local**	Dollars	Ratio
$ 6,500	$ 0	$ 0	$ 5,167	.79
10,000	0	0	7,272	.73
15,000	0	0	9,941	.66
20,000	166	32	12,282	.61
30,000	1,077	205	17,391	.58
50,000	3,153	599	25,675	.51

TABLE 1 CONTINUED

Retirement Income to Maintain Preretirement Standard of Living Married Couples Retiring in 1980—For Selecteld Income Levels

Gross Preretirement Income	Preretirement Taxes		Disposable Income	Work Related Expense#	Savings & Investments		Net Preretirement Income
	Federal*	State & Local**					
$ 6,500	$ 549	$ 29	$ 5,922	$ 355	0%	$ 0	$ 5,567
10,000	1,311	133	8,556	513	3	257	7,786
15,000	2,550	310	12,140	728	6	728	10,684
20,000	3,968	520	15,512	921	9	1,396	13,185
30,000	6,986	1,061	21,950	1,317	12	2,634	17,999
50,000	15,202	2,622	32,176	1,931	15	4,826	25,419

Gross Preretirement Income	Postretirement Taxes##		Equivalent Retirement Income	
	Federal	State & Local**	Dollars	Ratio
$ 6,500	$ 0	$ 0	$ 5,567	.86
10,000	0	0	7,786	.78
15,000	0	0	10,684	.71
20,000	0	0	13,185	.66
30,000	53	10	18,062	.60
50,000	1,651	314	27,384	.55

*Federal income and Social Security (OASDHI) taxes.

**Based on state and local 1978 income tax receipts which were 19 percent of Federal income tax receipts. Does not include property tax.

#Estimated as 6 percent of disposable income.

##Post retirement taxes are on income in excess of Social Security benefits would need higher replacement ratios.

Source: President's Commission On Pension Policy, *An Interim Report*, November, 1980.

Integration. Integrating private pension plans with SS payments was started early in the SS program.[11] Integration is attractive because the plan sponsor can provide adequate coverage, eliminate gaps and inequities, and keep costs at a reasonable level.

A glance at SS benefit tables reveals that these benefits are skewed toward the low income worker. To prevent standard of living reductions for higher paid workers, private pensions must offset SS payments. Table 2 shows SS replacement ratios for various levels of gross earnings. For the married one-earner family, the SS replacement ratio is only 1.0 percent below the TRR at the lowest earning level while at the highest, the replacement ratio is 34 percent below the TRR. Private pension plans are integrated with the SS program to alleviate this inequity.

Offset method. There are two approaches to integration: the offset method and the step rate method. The most direct, the offset method, allows for final pensions to be offset by SS payments. The offset may be up to 83-1/3 percent "if the benefit is computed on the basis of the Social Security Act in effect at the time the offset is applied."[12] This maximum is reduced if the plan provides other benefits. The dollar amount of the offset is frozen at retirement so that

TABLE 2
Hypothetical Social Security Replacement Ratios

Gross Earnings	Goal*	Social Security**	Remainder for Idealized Workers and Couples
Single			
$ 6,500	.79	.57	.22
10,000	.73	.49	.24
15,000	.66	.42	.24
20,000	.61	.34	.27
30,000	.58	.23	.35
50,000	.51	.14	.37
Married Equal Earner			
$ 6,500	.86	.82	.04
10,000	.78	.63	.15
15,000	.71	.54	.17
20,000	.66	.49	.17
30,000	.59	.42	.17
50,000	.50	.27	.23
Married One Earner			
$ 6,500	.86	.85	.01
10,000	.78	.73	.05
15,000	.71	.64	.07
20,000	.66	.51	.15
30,000	.60	.34	.26
50,000	.55	.21	.34

*See Table 1.

**Based on a continuously employed worker retiring at age 65 in 1980 and, if married, a spouse of age 65. Prior earnings were assumed to increase at 6 percent per year.

Source: President's Commission On Pension Policy, *An Interim Report*, November 1980.

further increases in SS payments cannot reduce payments from the plan.[13]

To illustrate, assume a plan provides 1.4 percent of final salary per year of service less 60 percent of the individual's SS payments after 35 years of service. Then, if the final average salary is $24,000, and the SS payment is to be $8,232 per year, the benefit from the plan would be:

Plan benefit = 0.014 x 35 x $24,000 = $11,760
less SS offset = 0.6 x $8,232 = 4,939
Net plan benefits = $ 6,821

The total retirement benefit package from the plan and SS payments will be $15,053.

There are advantages and disadvantages to integration. First the advantages: it is easily explained to pension recipients and their beneficiaries, and it allows the plan to automatically adjust to increases in SS benefits.

Disadvantages: it is not applicable to defined-contribution plans, plan benefits cannot be calculated until SS benefits are known, there is an inequity because of the different treatment of employees retiring immediately before and after an increase in SS benefits. For example, the

1981 cost of living raise of 11.2 percent created inequities between such retirees. The illustration above was determined before the cost of living raise. A person retiring immediately after the raise, assuming the same figures, would fare differently:

Plan benefit = 0.014 x 35 x $24,000 = $11,760
less SS offset = 0.6 x $8,232 x 1.112 = 5,492
Net plan benefits = $ 6,268

Total benefits would be $15,422. The recipient retiring before the raise would also receive the increase, but because of the prohibition against further reduction of plan benefits, would receive a total of $15,975, $553 per year more than the person retiring immediately after the cost of living raise. Perhaps the most telling disadvantage is the psychological impact of explicit and direct reduction of pension benefits due to benefits provided by an agency of the Federal government.

Step-rate method. This method provides different rates of accrual of benefits on portions of earnings above and below an integration level set by the Social Security Act. The level is set according to the year the recipient reaches sixty-five, and increases yearly. For 1977 it was $7,611 and for 1981, $11,004. Salary at or below the integration level accrues pension benefits at a lower rate than does salary above that level. This compensates for SS payments favoring lower pre-retirement incomes. Any formula constructed using the integration level is called a step-rate formula.

The differential in benefit rates is set by law. If the benefits are based on a career average salary (applied to actual compensation for each year of employment), the difference cannot exceed 1.4 percent. If, instead of career average, the pension is based on salary of the last five years the difference is limited to 1.0 percent. The difference is less as the averaging time becomes shorter. With defined-contribution plans, the differential cannot exceed 7.0 percent of contributions.[14] Using the same figures as above, assume a base benefit of 0.8 percent of final 5-year average salary and benefits of 1.2 percent in excess of the integration level:

Base benefit = 0.008 x 35 x $11,004 = $ 3,081
Excess benefit = 0.012 x 35 x $12,996 = 5,458
Net benefit from the plan = $ 8,539

If the individual is then entitled to $8,232 in SS payments, the total benefit would be $16,771.

The major advantage of the step-rate method when the breakeven point is stated in terms of the integration level rather than dollar amounts is that response to wage changes requires no plan amendments. In 1980, 67 percent of defined-benefit and 31 percent of defined-contribution plans were integrated with Social Security.[15]

Employers are reluctant to have a pension plan favoring higher-paid employees because it is difficult to explain to the lower-paid employees who make up the bulk of the payroll. The two considerations are equity and wage replacement ratios. The higher-paid employees must be treated fairly with respect to their pensions. One reason for a private pension plan is to maintain, within reasonable bounds, standards of living when employees retire. To accomplish this, SS payments for certain employees must be supplemented. Furthermore, if standards of living are maintained and every employee receives the same pension, lower paid employees will have wage replacement ratios greater than 1.0. The TRRs in Table 1 are less than 1.0 in all cases. Ratios greater than 1.0 are costly to the firm, but more importantly, are costly to the country by encouraging early retirement.

PENSION FUNDING

The basic concept of pension funding is illustrated by a reservoir of assets with three possible sources of input: employer contributions, interest on fund investments, and employee contributions if allowed. The outlet is pensions paid. The payout size is determined either by contributions and return on investment (defined-contribution) or a benefit formula modified by cost of living increases (defined-benefit).

Plan generosity is the primary factor in determining the size of pensions in defined-benefit plans. Overly generous disability benefits may allow healthy individuals to retire with disability pensions, causing an unacceptable drain on the pension fund reservoir.

Employee contributions, although a source of revenue, are not popular in large private pension plans.[16] Some considerations are: record keeping requirements, employees' proprietary interest over a fund to which they contribute, and the psychological impact of integration after substantial contributions.

Five factors essentially determine employer contributions. First, the more generous the design, the greater the contributions. Second, under any given funding method the normal cost to maintain the plan during the upcoming period and the supplemental cost to pay for service rendered in the years before the plan must be considered. Different funding methods with dissimilar asset targets require different contribution levels. Third, although actuarial assumptions have no effect on the final cost, they do affect the year-to-year payments. Fourth, the difference between plan experience and actuarial assumptions must be considered. They are based on economic conditions, mortality rates, termination rates, etc. Fifth, the maturity status of the members, that is, the age and service of the participants, merits consideration.[17]

The term "asset target" may be encountered as: "actuarial liability, past service, or accrued liability." This is not a liability in any accounting or contractual sense of the term. The term, long in use by actuaries, arises from several causes, such as granting benefits for prior service and liberalizing plan benefits, for example, early retirement or cost of living increases. The asset target may increase if a more conservative funding method is used causing the gap between accumulated and required assets to widen. Most plans fall short of target assets giving rise to supplemental costs. Under ERISA, this gap, for plans started after January 1, 1974, must be amortized over a maximum of thirty years.

FUNDING METHODS

Two basic funding methods determine the level of assets for the individual participant: Benefit-allocation and Cost-allocation. The first is based on contributions and asset targets according to the benefits allocated to the plan participants. The second is based on the total pension costs expected to be incurred on behalf of the individual.

Various cost allocation methods are associated with each funding method to determine the yearly contribution. Some methods require higher contributions in early years and others have higher contributions in later years. Once the decision is made to start a private pension plan, an actuary must be consulted for the best funding and allocation method.

Initial and subsequent contributions must be invested immediately. There are stringent requirements for administering and reporting qualified plans. ERISA establishes a "prudent man standard" governing the conduct of fiduciaries. "Each fiduciary of a plan must act with the care, skill, prudence and diligence under the prevailing circumstances that a prudent man acting in a like capacity would use in conducting an enterprise of like character ..."[19]

CONCLUSIONS

This paper has discussed several important preliminary considerations to starting a pension plan as well as basic pension terms. Pension plans are not superfluous in the scheme of things. Social Security has always been deemed a floor upon which to build an adequate retirement income. A private pension is the third leg of a "three-legged" stool upon which to base a retirement income.

A well-designed pension plan will pay benefits in excess of the costs to the employer. Benefits that may be unmeasurable and intangible but real nevertheless. It will, in the long run, provide an incentive for workers to stay with the firm, thus lowering recruiting, hiring, and training costs.

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[1] President's Commission on Pension Policy, *An Interim Report,* November 1980, p. 5, 22.

[2] Financial Accounting Standards Board, FASB Discussion Memorandum *An Analysis of Issues Related to Accounting and Reporting for Employee Benefit Plans,* October 6, 1975, p. F-3.

[3] U.S. Department of Labor Statistics, *Digest of Selected Pension Plans* 1976-78 Edition, (USGPO, Washington), 1977.

[4] Edward A. Stoeber, *Pension Reform Act Explained: New Guidelines for Corporate, Keogh, and Individual Retirement Plans,* The National Underwriter Company, (Cincinnati, 1974), pp. 4-6.

[5] Barthus J. Prien, "Review of Withdrawal Rates for a Pension Valuation," in *The Proceedings* 1977-1978 Conference of Actuaries in Public Practice, 27th Annual Ed., 1978, p. 85.

[6] Sections 402 (a) (5) and 403 (a) (4) of the Internal Revenue Code of 1954 as amended by ERISA.

[7] Shelley Lapkoff and Edith Fierst, *Working Women, Marriage, and Retirement,* Working Paper, President's Commission on Pension Policy, August 1980, p. 39.

[8] Prien, "Review of Withdrawal Rates," p. 87.

[9] Lapkoff and Fierst, *Working Women,* p. 39.

[10] President's Commission, *Interim Report,* p. 12.

[11] Ibid., p. 37.

[12] Ibid., p. 38.

[13] Howard Windlevoss, and others, *Public Pension Plans Standards of Design, Funding, and Reporting,* Dow Jones-Irwin (Homewood, Ill., 1978), p. 59.

[14] Ibid., p. 62.

[15] President's Commission, *Interim Report,* p. 40.

[16] U.S. Dept. of Labor Statistics, *Digest of Selected Pension Plans.*

[17] Winklevoss and others, *Public Pension Plans,* pp. 192-94.

[18] Stoeber, *Pension Reform Act Explained,* p. 19.

[19] Ibid., p. 83.

AN INTRODUCTION TO SOCIAL SECURITY BENEFIT COMPUTATIONS

William C. Letzkus
Associate Professor of Accounting
University of Arkansas, Fayetteville

INTRODUCTION

The Social Security System has a far greater potential impact on our lives than is generally realized. The system is intended to provide minimum retirement benefits to eligible workers and their spouses. It provides benefits for eligible workers and/or their families in the event of long-term disability or death. There is also an indirect effect of social security in that many group long-term disability plans and company retirement plans include a social security offset; i.e., a reduction of plan benefits based on the receipt of social security benefits.

It is imperative that individuals have some knowledge of potential social security benefits in order to better plan for their future and that of their families. The purpose of this paper is to provide an introduction to the computation of social security benefits.

THE 1977 SOCIAL SECURITY AMENDMENTS

The 1977 amendments to the Social Security Act introduced a number of changes in the computation of social security benefits. Of particular concern are the provisions for indexing wages and a new benefit formula. This wage-indexed method for computing benefits went into effect on January 1, 1979, for new social security benefits recipients.[1]

Using what is essentially a four-step process:

a) social security "covered" wages are indexed;
b) an average indexed monthly earnings (AIME) is computed;
c) a primary insurance amount (PIA) is computed and
d) social security benefits are computed.

Indexing Covered Wages

Indexing is the process of determining the current value of those wages subject to social security taxes (i.e., "covered" wages) which were earned in prior years. The "index year" used to index these covered wages is the second year prior to a worker's "benchmark year" (i.e., the year a worker first reaches age 62, becomes disabled, or dies).

The formula for indexing a worker's social security covered wages can be expressed as:

$$\begin{array}{c}\text{Actual Covered Earnings}\\\text{of a Given Year}\end{array} \quad \text{X} \quad \frac{\begin{array}{c}\text{Average Earnings (National)}\\\text{of the Index Year}\end{array}}{\begin{array}{c}\text{Average Earnings (National)}\\\text{of the Year Being Indexed}\end{array}}$$

Table 1 presents maximum wages covered by the Social Security System from (and including) 1951 through 1982 and the relative index for each of these 32 years. Note, however, that these indices are relevant only for workers whose benchmark year is 1983. Until a benchmark year is achieved, the indexing of a worker's covered wages will change annually.

The table is set up so that an individual can enter his/her covered wages for

TABLE 1
Indexing Covered Wages
(1983 Benchmark Year)

Year	Maximum Covered Wages	Index*	x	Your Covered Wages	=	Your Indexed Wages	Maximum Indexed Wages
1951	$ 3,600	4.9204		______		______	$ 17,713.44
52	3,600	4.6322		______		______	16,675.92
53	3,600	4.3871		______		______	15,793.56
54	3,600	4.3646		______		______	15,712.56
1955	4,200	4.1718		______		______	17,521.56
56	4,200	3.8991		______		______	16,376.22
57	4,200	3.7820		______		______	15,884.40
58	4,200	3.7490		______		______	15,745.80
59	4,800	3.5720		______		______	17,145.60
1960	4,800	3.4372		______		______	16,498.56
61	4,800	3.3702		______		______	16,176.96
62	4,800	3.2095		______		______	15,405.60
63	4,800	3.1326		______		______	15,036.48
64	4,800	3.0096		______		______	14,446.08
1965	4,800	2.9564		______		______	14,190.72
66	6,600	2.7890		______		______	18,407.40
67	6,600	2.6418		______		______	17,435.88
68	7,800	2.4719		______		______	19,280.82
69	7,800	2.3369		______		______	18,227.82
1970	7,800	2.2264		______		______	17,365.92
71	7,800	2.1199		______		______	16,535.22
72	9,000	1.9307		______		______	17,376.30
73	10,800	1.8170		______		______	19,623.60
74	13,200	1.7150		______		______	22,638.00
1975	14,100	1.5958		______		______	22,500.78
76	15,300	1.4928		______		______	22,839.84
77	16,500	1.4084		______		______	23,238.60
78	17,700	1.3048		______		______	23,094.96
79	22,900	1.1998		______		______	27,475.42
1980	25,900	1.1007		______		______	28,408.13
81	29,700	1		______		______	29,700.00
82	32,400	1		______		______	32,400.00
**						______	______
				Total			$616,972.15

$$*\frac{\text{Average Earnings (1981 index year)}}{\text{Average Earnings of Year Being Indexed}}$$

All covered earnings in and after a worker's index year will **not be indexed.

any of these years and readily compute indexed wages for the year in question. Note that although indexed wages can and normally will exceed the social security maximum wage base for a given year, actual covered wages (non-indexed) cannot exceed this maximum wage base.

Average Indexed Monthly Earnings

Once a worker's wages have been indexed, the next step is to compute average indexed monthly earnings (AIME). This computation can be expressed as:

$$\text{AIME} = \frac{\text{total relevant indexed wages}}{\text{total relevant months}}$$

Rules are provided for determining which years of an individual's working life are to be used in the computation of AIME. The process essentially begins with a count of a worker's "elapsed years."

To determine elapsed years, count the number of calendar years after 1950 (or after attainment of age 21, if later) and before the year the worker reaches age 62, becomes disabled, or dies, whichever occurs first.[2] The resultant number of elapsed years is then normally reduced by five to arrive at the number of "computation base years."[3]

The specific years to be included in determining average indexed monthly earnings (and the subsequent benefit computations) are those years which are most favorable to the worker; i.e., those years with the greatest indexed earnings (ref. Table 1). The total number of years included cannot exceed the worker's computation base years (normally elapsed years minus five).

To demonstrate the computation of AIME, assume an individual becomes 62 in 1983 and has had maximum covered wages from (and including) 1951 through 1982. Elapsed years would be 32 and the resultant base computation years would be 27 (32 minus 5).

AIME would be computed as follows:

total indexed wages (ref Table 1)	$616,972.15
less low five years	
1965 — $14,190.72	
1964 — $14,446.08	
1963 — $15,036.48	
1962 — $15,405.60	
1954 — $15,712.56	- 74,791.44
net relevant wages	$542,180.71

AIME = $542,180.71 ÷ (27 years x 12 months)
= $1,673 (rounded down to whole dollar)

Covered earnings in or after a worker's index year are not indexed (see Table 1). There unindexed wages (up to the maximum amount of that year) may, however, be substituted for the lower indexed wages of prior years in the computation of AIME. Thus, for example, if the individual noted above had maximum covered wages in 1983 ($35,700), these unindexed wages could be substituted for lower indexed wages of a prior year (in this instance the $15,745.80 indexed wages of 1958).

Primary Insurance Amount

A worker's primary insurance amount (PIA) is derived from his/her AIME, an established set of percentage factors, and a set of "bend points" relevant to the worker's benchmark year (the year a worker first reaches age 62, becomes disabled, or dies). For a worker whose benchmark year is 1983, the PIA formula and bend points are:

90% of the first $253 of AIME
32% of the next $1274 of AIME
15% of AIME over $1527

For the worker whose AIME was computed above, the PIA computation would be:

90% of $253 = $227.70
32% of $1274 = 407.68
15% of ($1673-1527) = 21.90

PIA (rounded to next lower multiple of ten cents) $657.20

Note that the bend points (dollar amounts) of the PIA formula are relevant only to those workers whose benchmark year is 1983. Although the percentage factors of 90%-32%-15% remain constant, the bend points to which these percentage factors are applied will be adjusted annually based on the change in average wages of the index year (e.g., 1984 bend point changes will reflect the percentage change of 1982 average wages).

Social Security Benefits

Almost all social security benefits are based on a worker's PIA. When no reductions apply (e.g., a worker begins to draw old-age benefits at exactly age 65), the worker's PIA and benefit amount will be equal. When benefits are taken early or when a derivative benefit such as a spouse's benefit is computed, the benefit amount will be some fraction of the worker's PIA. For example, benefits would be 80% of PIA for a worker whose old-age benefits start at age 62 and 50% of PIA for a spouse's benefit starting at age 65.

It is not feasible to list all possible scenarios for social security benefits. Age, the existence of qualifying children, the type of benefit (old-age, survivor, disability), and other factors all combine to make the possible combinations virtually limitless. Similarly, escalator provisions of the law compound the difficulty of stating discrete benefits.

Table 2 does, however, summarize some of the basic social security benefit provisions.[4] There are exceptions to and qualifications of the benefits stated in Table 2. For specifics as to benefit entitlements, one should consult the nearest social security representative.

With respect to social security benefits, one should note that the PIA formula and resultant computations of a worker's benchmark year remain with the worker and his family regardless of future bend point adjustments and index changes. The benefits derived from this PIA will, however, be increased by any cost-of-living escalator adjustments that occur in or after the worker's benchmark year.

SUMMARY

The 1977 amendments to the Social Security Act introduced, effective with 1979, a new wage-indexed approach to the computations of social security benefits. Essentially involving four steps, these procedures call for the (1) indexing of wages, (2) the computation of average indexed monthly earnings, (3) the computation of a primary insurance amount, and (4) the derivation of social security benefits. Nearly all social security benefits evolve directly from a worker's primary insurance amount (PIA).

TABLE 2
A Summary of Basic Social Security Benefits

Old-Age Retirement*	
worker (age 65)**	Benefit equals PIA.
(age 62-65)	Benefit reduction of 5/9 of 1% of PIA for each month prior to age 65.
spouse (age 65)	Full benefit is 50% of worker's PIA.
(age 62-65)	Benefit reduction of 25/36 of 1% of full spousal benefit for each month prior to age 65.
child (if qualified)	Benefit is 50% of worker's PIA.
Disability*	
worker	Benefit equals PIA.
spouse (age 65 or under 65 and caring for qualified child)	Full benefit is 50% of worker's PIA.
(age 62-65)	Benefit reduction of 25/36 of 1% of full spousal benefit for each month prior to age 65.
child (if qualified)	Benefit is 50% of worker's PIA.
Death*	
spouse (age 65)	Full benefit is the benefit the deceased spouse would receive if living.
(age 60-65)	Benefit reduction of 19/40 of 1% of full spousal benefit for each month prior to age 65.
(with qualified child)	Benefit is 75% of worker's PIA.
child (if qualified)	Benefit is 75% of worker's PIA.

*The law limits the total monthly benefits payable to a family. Due to the complexity of the formula and the escalator provisions of the law, it was not feasible to introduce these limits in this table.

**There is a delayed retirement credit which will progressively increase the old-age benefit amount of workers who delay retirement beyond age 65.

Given a 1983 benchmark year, this article has presented all data necessary for PIA computations. The various escalator provisions inherent in the PIA computations make it difficult, but not impossible, to estimate a PIA for future benchmark years.

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[1] For workers reaching age 62 in the period 1979-1983, benefits will be computed under both the new wage-indexed method and a transitional method to determine which will provide the higher benefits. For simplicity this paper addresses only the wage indexed method.

[2] Special rules exist for computing the elapsed years of workers reaching age 62 prior to 1975.

[3] There are special rules which limit the number of elapsed years that can be excluded in the determination of computation base years of younger workers becoming entitled to disability benefits.

[4] Under the 1981 Budget Reconciliation legislation, benefit amounts not even multiple of 10¢ are rounded down to the next-lower 10¢ at each stage of the computation process, except at the last step (the actual benefit amount payable) where the rounding is to the next-lower dollar.

RECREATIONAL LAND VALUES AND TRENDS IN NORTHWEST ARKANSAS

Mark E. Risk
Instructor of Real Estate
University of Arkansas

INTRODUCTION

During the past two decades a widespread and complex market has developed for privately owned recreational properties in the United States. Northwest Arkansas certainly has not been excepted from this phenomenon. This area has long been noted for its scenic beauty and recreational opportunities. With the completion of the Beaver Reservoir in the mid-sixties an even greater supply of recreational land and opportunities became available. This coupled with an increased demand for such properties and a large influx of retirees into the area has developed into a substantial market.

In early 1982, the Arkansas Center for Real Estate Research and Education funded a research project in which recreational land values and markets in Northwest Arkansas were ascertained and analyzed. A great deal of data were accumulated and the results and summary of this research is presented in this article.

AREA OF STUDY

The study involved recreational land in Washington, Benton, Carroll, and Madison counties. Specifically, properties fronting on Beaver Lake, the White River, War Eagle Creek and the Kings River were studied.

Recreational land, for the scope of this study, is defined as real property which fronts or has legal access to navigable waterways such as lakes and rivers. Furthermore, the intention of this study has been to ascertain land values; hence, only vacant land transactions were researched.

METHODOLOGY

Recreational land transactions were researched from County Courthouse public records as well as from records of area abstract and title companies, area real estate brokers, and area developers. These transactions were categorized according to size, location, date of sale, etc., and analyzed. A sample of the above transactions was selected to research in-depth. A questionnaire was mailed to selected buyers, sellers, brokers, and developers in order to survey attitudes, verify land values, and to develop a buyer profile. And, finally, the data were condensed and correlated thus permitting conclusions to be drawn.

RESULTS

Current Market Values

Approximately 200 transactions were researched. Of this number, 65 sales were selected and analyzed in-depth. These data are available upon request from the Arkansas Center for Real Estate Research and Education. The following is a summary.

Beaver Lake. 1 acre or less: Values ranged from a low of $2,000/lot to a high of $18,000/lot, the low being lake access lots in the upper portion of the lake and the high being well-developed prime-lakefront lots east of Rogers, Arkansas. The median sales price was $6,000/lot for the period including 1980, 1981, and the first six weeks of 1982. The majority of these sales are lots in developed subdivisions and may or may not have lake frontage. Regardless, all have either lake frontage, lake view, lake access, or a combination thereof.

1-3 acres: Sales prices in the 80-81 period ranged from a low of $3,000 /tract to a high of $30,000/tract. This translates to a low of $2,500/ acre to a high of $15,000/acre. The high sale was a prime lakefront 2-acre tract near Larue, Arkansas. The median price was $12,000/ tract or $7,000/acre.

3-5 acres: Very few sales in the 3-5 acre category were found. Sales prices ranged from a low of $9,000/ tract to a high of $16,000. Per acreage prices ranged from $2,500 /acre to $4,000/acre. The median price was $12,000/tract or $3,800 /acre.

5-10 acres: Sales prices ranged from a low of $1,500/acre to a high of $3,000/acre. The median price was $2,600/acre.

10-20 acres: Sales prices in the 80-81 period ranged from a low of $1,000/acre to a high of $3,500/ acre. The median price for the above period was $1,500/acre. However, the median for 1981 was $2,500/acre.

20-50 acres: Sales prices within this category revealed a wide range among few sales. Per acre prices ranged from a low of $350/acre to a high of $2,650/acre. The low tract was very remote and access would be considered poor. The median price per acre for the 1980-81 period was $1,450/acre.

50+ acres: As might be expected, sales data were scant in this category due to the small supply and demand. Per acre prices in the 1979-81 period ranted from $720/ acre to $1,200/acre. The median price per acre for this period was $800. However, the mean price per acre was $912.

River property. The majority of river property is utilized for agricultural purposes and not recreational activities. Regardless, some of these properties are purchased for home sites, investments, hunting, etc., with no intention of the buyer to use the property for agricultural purposes. The following is a summary of the data obtained on the studied rivers.

White River: Activity has been slow on the White River over the past few years. It was necessary to research sales back into 1977 to ascertain current market values. Mean sales price per acre was $560. Average size of the tracts was 83.5 acres. The highest values were obtained on small (1-10 acre) homesites. There has been little if any appreciation in the values of large tracts which are valued in the $300-500 range. Prime bottomland ranged from $600 to $1,000/acre.

War Eagle Creek: Activity has also been slow on the War Eagle. Several of the documented sales involved agricultural enterprises and improvements which makes the abstraction of land values difficult. Furthermore, all the sales were of fairly large size. Values ranged from a low of $235/acre (620 acres noncontiguous) to a high of $500/acre. Predominant value was $350/acre. Also, little increase in values was observed over the period studied.

Kings River: A much greater amount of activity has occurred on the Kings River. Several riverfront subdivisions have been developed. Furthermore, values along the Kings are substantially higher than those along the other rivers studied. Values ranged from a low of $200/acre for remote rugged land to a high of $1,000/acre for larger tracts. Riverfront lots range from $5-8,000/lot and 3-5 acres in size. The mean price per acre was $605. Good riverfront property would predominantly fall in the $5-800/acre range. Access and terrain are the main factors in value. Property values have increased substantially since 1977. The Kings River has more recreational potential than than the other rivers.

FIVE-YEAR TREND ANALYSIS

Beaver Lake

1 acre or less: A significant upward trend in values has occurred since 1977. It is not uncommon in the prime areas to find lots which have increased 50% or more. However, lots in the low range of value have not appreciated nearly as much. In other words, the most valuable lots are increasing in value while the inexpensive lots have remained stable.

1-3 acres: This size tract has also seen a marked increase in value over the period analyzed. Trend lines show an average increase of 25% to 35% since 1978.

5-10 acres: Trend lines reveal a steady increase in values since 1977. Approximate increases in value approach 50%.

10-20 acres: Values have been increasing but at a much slower rate than in the above categories. Trend lines show about a 15-20% increase since 1977.

20-50 acres: Significant increases in value have been experienced in this category also. Trend lines show a 50% average increase over the studied period.

50+ acres: Few sales were available in this category. But, surprisingly, those researched revealed an actual leveling off or even a slight decline in value. Many reasons could be speculated on why this has occurred. Lack of qualified buyers, prime tracts have already been purchased and subdivided, a possible saturation of the lake-lot market reducing profit margins, and the demand for large tracts could all be reasons why this stabilization has occurred.

VALUE ATTRIBUTES

The following property characteristics (not necessarily in their order of importance) affect the value of lakefront property on Beaver Lake.

Accessibility

Generally the more accessible the property, the greater is its value. Paved access is naturally more valuable than unpaved access. Proximity to area cities (Rogers, Eureka Springs, and Springdale) positively affects value. However, there are exceptions. Some property on the lake while very remote and secluded still brings top dollar (e.g. Rambo Riviera, Lost Bridge Area).

Lake Frontage

Obviously, the more lake frontage that a property has, generally the higher is its value. Lake frontage on Beaver can vary from level pasture to 100-foot rock bluffs. Price/lakefront foot (LFF) varies widely from a low of $9/LFF to a high of $150/LFF depending on the quality of frontage and the ratio of land size to lake frontage. The median value during 1981 was $45/LFF.

Slope/Terrain

Generally, the more gradual the slope of the property down to the lake the greater is its value. Most people want easy access to the lake from their home site. Level to gradual slopes are rare on Beaver Lake, hence increasing their value. On the other hand, adequate access can be provided by man-made improvements on most of the property on the lake.

View

A high value is placed on property with panoramic views of the lake. Some of the higher priced property on the lake is very steep and rough but offers beautiful and unique views. People apparently have a feeling of elitism by being able to look down and over the lake. Often a tremendous view will offset other deficiencies a property might have.

Boat Dock Zoning

The U.S. Army Corps of Engineers has zoned the shoreline of the lake. In other words, boat docks can only be placed where zoning for such is permitted. Obviously, if property has such zoning it is more valuable than if not. There is a growing trend encouraged by the Corps toward community boat docks. For example, one large dock is built in a permitted area which serves several families or households.

Availability of Potable Water

If drinking water is available to the property it has a higher value than if not. Existing water wells and availability of city water is valuable. It currently costs approximately $5.50/foot to drill a well with depths ranging from 100 to 450 feet. It is common on the lake to find community water wells serving five or fewer families.

Sewage Control

Due to an increased awareness of pollution control on Beaver Lake, sewage disposal is becoming an important issue. Septic tank systems are the predominant form of disposal. In order to install these systems the property must "perk" or meet state and local standards which are becoming more stringent. Therefore, the property must "perk" satisfactorily in order to build. Hence, "perk"-ability affects value. This can be a problem for small lots and low lying lakefront lots on the lake.

Other Utilities

The more public utilities which are available to the site the greater its value. Most property on the lake has access to electricity and telephone services. Gas service is available only in the more developed areas of the lake.

Public Services

Police and fire protection do affect property values to some degree but generally affect the size and quality of any structure which might be erected and not the value of the land. Value attribute is probably better reflected by the site's proximity to the area's major cities (Rogers, etc.).

Clearing

The vast majority of the property on Beaver Lake is in timber. Partial clearing of land will increase its value. However, total clearing is not recommended. People associate trees with natural setting and value tree shaded sites over barren sites.

Rock Formations

Unusual rock formations and bluffs are attractive to people and show higher values on lakefront properties. This is closely related to views and visual aesthetics that a property offers.

FINANCING

The ability to offer financing to prospective buyers appears to be essential in generating recreational land sales. The vast majority (92%) of sales surveyed were financed by the sellers. This is understandable due to the buyer's motivation towards an investment where he parts with an initial downpayment and commits himself to a stream of future payments. Typical buyers are living in nearby metropolitan areas, earning good incomes, and willing to invest in land which they will own outright sometime in the future (3-10 years) when they are most likely to use it for future retirement or vacation homes.

Survey Results (Financing)

Down payments ranged from 4% to

75%. The majority fell within the 10-30% range. Interest rates ranged from 6% to 10% on the balances. Sixty-seven percent of the sales were financed at the state usury ceiling of 10%. Length or term of the financing ranged from 2 to 15 years. The majority fell within the 5-10 year period.

Amortization schedules were predominantly set up on a monthly basis. However, quarterly, semi-annual, and annual payment schedules were also experienced. Monthly payments ranged from $90 to $581.

Ninety percent of the sales surveyed were financed under the above formats. Ten percent were "creatively financed" employing balloon payments. One transaction was financed at no interest with the principal only being paid through monthly payments for 10 years.

TARGET MARKETS

Beaver Lake appears to have appeal to all income groups and people from all walks of life. In other words, the total potential market is very broad. However, two submarkets stand out.

1. Undoubtedly, the largest submarket is what might be called the preretiree. This person is 50-65 years in age, has been successful in life, and has enough discretionary income to make an investment in land for a future retirement home. Such people are in the middle to high income brackets and are empty nesters.

2. The second largest submarket is the young professional (25-40 years in age) who is looking for a site for a second or vacation home. These people earn sufficient incomes but have yet to reach their career peaks. They view the purchase as an investment. They rarely pay cash but rather finance the transaction.

Market Areas

One surprising result of the questionnaire, and the research confirmed this, was that the vast majority of the property on Beaver Lake is owned by out of staters. People from almost every state of the union own property on the lake. The realtors' questionnaire revealed that anywhere from 75% to 100% of each realtor's or developer's sales have been to out of staters.

Several studies reviewed by the author indicated that purchasers of recreational property select a site or location at least 50 miles from their primary residence but within 250 miles or about four hours driving time. A secondary market extends within one day's driving time, say 250-500 miles. It is estimated that 75-85% of the potential market for recreational property will be found in the latter range. The research on Beaver Lake confirmed this—aside from the strong appeal this area has in the Chicago area (12 hours, 600 miles).

The strongest market areas have been in the Midwest: Kansas (Wichita); Missouri (Kansas City); Illinois (Chicago); Minnesota; Iowa (Des Moines); Ohio. There is a growing market in Texas and Oklahoma.

FUTURE OUTLOOK

The research performed indicates a good future for recreational land development and sales in Northwest Arkansas during the 1980s.* This research project has not been intended to be a marketability or feasibility study. However, certain facts were revealed which present an optimistic future. Those characteristics are as follows:

> There is strong desire within the public to own a vacation or retirement home away from the metropolitan area where they have or

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*Recreational land or property is not a basic necessity such as food, clothing, and primary lodging. It therefore is subject to changes in demand tied closely to the current economic conditions of the time. This is an overall outlook for the next decade.

are making their incomes. The motivational factors include: a desire to participate in outdoor recreation, a desire to escape urban disamenities, the desire to own property with its potential for status achievement, and the anticipation of appreciation of its value.

The baby-boom cohort of the post-World War II period is maturing during the 1980s and will be at the age when they will have a high propensity for the purchase of recreational properties.

Recreational land in Northwest Arkansas is 30-50% less than comparable properties in other states.

Other retirement areas are becoming overcrowded.

The potential use of the recreational land investment as a tax shelter.

And, finally, Warren, Gorham, and Lamont's *Real Estate Outlook,* a nationally renown real estate publication, picked the Ozark region of Missouri and Arkansas as one of the top three up and coming areas for vacation homes in the United States.

JANUARY INDICATORS SUGGEST RECOVERY IN ARKANSAS FOR 1983

William R. Darden
R.A. and Vivian Young Distinguished
Professor of Business Administration
University of Arkansas, Fayetteville

Theodore C. Alex
Director, Arkansas
Household Research Panel
University of Arkansas, Fayetteville

INTRODUCTION

For the first time in two years, the Arkansas Household Research Panel (AHRP) economic and social indicators strongly suggest economic recovery in Arkansas. Arkansans, in the past year, have become more optimistic with respect to family financial status and expect further improvement over the next year. In fact, Arkansans serving as household panelists now perceive significant improvements in present business conditions over those of last year and express optimistic views for continued recovery throughout next year. Serving as a barometer for the State, 500 AHRP members also reported more favorably about the Arkansas economy over the next 5 years; and they clearly indicated increases in their intentions to buy durable goods and life insurance.

Table 1 clearly shows that all but two of ten indicators increased sharply in the fourth quarter of 1982 (Note: AHRP fiscal year ends with January). This table also demonstrates that optimism in future family financial condition was up in 1982 over every comparable period in 1981. This was also true for intentions to purchase durable goods and life insurance. The only indicator that did not increase in January 1982 was AHRP intentions to purchase new homes.

TABLE 1
HOUSEHOLD FINANCIAL AND SOCIAL INDICES BY QUARTER

	1981				1982			
INDEX	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4
Family Financial Status	.903	.940	.904	.904	.956	1.01	.926	.965
Future Family Financial Condition	.908	.945	.901	.891	.932	1.01	.961	1.012
Current Business Conditions	.776	.838	.775	.692	.827	.785	.712	.825
Short Run Business Conditions	.838	.751	.832	.787	.812	.842	.839	.901
Long Run Financial Status	.884	.895	.865	.857	.876	.886	.893	.935
Durable Goods Purchase	.839	.839	.832	.837	.840	.857	.854	.886
Life Insurance Purchase	.979	.979	.961	.973	.978	.984	.980	.993
Real Estate Investment Purchase	.939	.942	.917	.917	.922	.912	.918	.934
Stocks and Bonds Purchase	1.036	1.075	1.041	1.034	1.037	1.038	1.035	1.033
Home Purchase			.995	1.002	.987	1.016	1.071	1.018

NOTE: Indices in reports prior to June 1982 have been recomputed to coincide with standards currently in use.

As indicated in prior reports, the authors believe that panel members' perceptions of their own economic situation (and that of their State), along with indications of their intentions to purchase or invest in selected products, can be useful to lawmakers and administrators in Arkansas. It is suggested that major shifts in perceptions are caused by experiences that are, in general, correctly interpreted by household members. Thus, the dramatic shift toward a more optimistic view for the present and future family financial situations and for present and future business conditions should be interpreted as evidence that household respondents are receiving both direct and indirect information that is economically pleasing.

Much of this information is primary, its origins being at the lowest levels of economic interaction. Thus, the views of AHRP panelists are shaped not only by their own economic experiences but also by those that are presented through the mass media. The following sections are used to examine critically the significance of (1) family financial status and (2) Arkansas business conditions on (3) intentions to buy selected products.

FAMILY FINANCIAL STATUS

How well off are Arkansans compared to a year ago? Table 2 contains AHRP responses to the question of family financial status, and the data suggests that Arkansan families feel that 1982 was a better year than 1981. For example, the base year index for this question for every quarter in 1982 is substantially greater than for the corresponding quarter in 1981. AHRP respondents also had

TABLE 2
FAMILY FINANCIAL STATUS COMPARED TO A YEAR AGO

Month	Year	Better Off (%)	Same (%)	Worse Off (%)	Base Year 1978 Index	Seasonal Adjusted Index
Mar	78	45.3	28.8	25.9	1.054	1.138
Jun	78	39.9	33.4	26.8	1.019	1.100
Sep	78	34.7	34.7	30.6	0.972	1.067
Jan	79	34.2	33.2	32.5	0.960	1.066
Mar	79	26.1	31.3	42.6	0.879	0.949
Jun	79	25.6	31.9	42.5	0.878	0.948
Sep	79	21.7	40.0	38.3	0.879	0.965
Jan	80	22.2	42.7	35.1	0.895	0.993
Mar	80	24.3	37.0	38.7	0.888	0.959
Jun	80	19.8	44.6	35.6	0.882	0.952
Sep	80	20.6	45.9	33.5	0.895	0.982
Jan	81	18.5	40.3	41.2	0.855	0.948
Mar	81	21.8	45.5	32.7	0.903	0.975
Jun	81	25.9	45.6	28.5	0.940	1.014
Sep	81	20.5	48.3	31.2	0.904	0.992
Jan	82	22.5	44.5	33.1	0.904	1.003
Mar	82	28.4	44.0	27.6	0.956	1.032
Jun	82	31.2	49.7	19.1	1.014	1.094
Sep	82	26.4	41.6	32.0	0.926	1.016
Jan	83	29.2	44.1	26.6	0.965	1.070

a higher probability of answering "better off" in all quarters of 1982 than in either 1980 or 1981. The message seems clear: household respondents in January 1983 felt that their household financial situation had improved over that of one year ago. What caused them to feel that their fortunes had improved so dramatically?

Expectations

But have family financial situations of Arkansans changed as **expected one year ago**? This is a critical question, as it addresses issues of validity and the abilities of household members to foresee their household fortunes one year ahead. Table 3 contains data that is helpful in examining this issue. For each quarter the 1982 perceptions of actual family financial status are compared with 1981 predictions of percent improvements in 1982 (expectations). Concentrating on the "better" response shows an interesting and important finding: for every quarter, "actual" improvements in 1982 family financial status are greater than that anticipated in 1981 for the period ahead. In other words, "actual" performance exceeded "expected" performance with respect to the financial situation of the family; this is demonstrated each quarter by higher percentages of those responding "better" in 1982 than those **guessing** "better" in 1981 **for 1982.** This leads to the premier question of this paper: does a sustained period of such perceptions (actual family financial status greater than expected) lead to increases in **purchase intentions** of selected products?

TABLE 3
FAMILY FINANCIAL STATUS: PREDICTED AND ACTUAL

	Better (%)		Same (%)		Worse (%)	
Month	Expected 1981	Actual 1982	Expected 1981	Actual 1982	Expected 1981	Actual 1982
Mar	23.4%	28.4%	52.7%	44.0%	23.9%	27.6%
Jun	27.5	31.2	52.4	49.7	20.1	19.1
Sep	21.3	26.4	55.3	41.6	23.4	32.0
Jan	22.8	29.2	49.9	44.1	27.3	26.6

PURCHASE INTENTIONS

Table 1 contains quarter indices for intentions to purchase (1) durable goods, (2) life insurance, (3) real estate, (4) stocks and bonds and (5) homes. In the last quarter of 1982, indices for intentions to purchase durable goods, life insurance, and real estate surged upward. Thus, there is some support for the major thesis of this paper: viz., purchase intentions appear to turn up after sustained periods where **actual** family financial status is greater than that **expected** at an earlier date for that later time.

In addition, Tables 4, 5 and 6 show that responses to "Good time to Buy" for durable goods has **increased** steadily over the latter part of 1981 and all of 1982 (including January 1983). Conversely, percentages of AHRP panelists responding "Bad Time to Buy" has **declined** steadily (approximately one in five Arkansans now express this negative view). Table 5 shows those panelists responding "Don't Plan to Buy" insurance has also dropped steadily (from 94.4% in September 1981 to 87.5% in January 1983).

Likewise, intentions to purchase real estate has risen (see Table 6). Again, those panelists responding "Don't Plan to Buy" real estate have fallen steadily (from 80% in September 1981 to 77.1% in January 1983).

ARKANSAS ECONOMY: NEXT 5 YEARS

But what are longer run expectations of Arkansans for the Arkansas economy? Increasing numbers of AHRP panelists feel that "Good Times" will be experienced by the State during this period. The percentage responding "Good Times" to this question has risen from 10% in January 1982 to 18% in January 1983 (see Table 7). In addition, the index for this measure has risen from .857 in January of 1982 to .935 in January of 1983.

IMPLICATIONS

The AHRP indicators suggest that households are experiencing increasing confidence in the economy. In addition, their own assessment of their family financial status is greater now than, one year ago, they had expected it to be. It was suggested that these factors are related to purchase intentions toward selected products in a positive fashion. Empirical support for these ideas was available from an inspection of the AHRP purchase intentions data. Purchase intentions in January 1983 had increased for three of the product areas investigated. These overall findings provide the basis for an economic prognosis that is quite favorable over the next five years.

TABLE 4
INTENTION TO PURCHASE DURABLE GOODS

Month	Year	Good Time To Buy (%)	Don't Know Depends (%)	Bad Time To Buy (%)	Base Year 1978 Index	Seasonal Adjusted Index
Mar	78	44.9	45.2	9.9	1.006	1.169
Jun	78	40.5	49.7	9.8	0.981	1.140
Sep	78	44.4	45.4	10.2	1.001	1.197
Jan	79	47.3	41.5	11.2	1.013	1.188
Mar	79	14.5	48.3	37.2	0.745	0.866
Jun	79	19.7	50.0	30.3	0.788	0.916
Sep	79	17.8	45.7	36.5	0.759	0.908
Jan	80	17.2	51.2	31.6	0.774	0.908
Mar	80	36.6	40.6	22.8	0.892	1.036
Jun	80	29.9	46.1	24.0	0.855	0.994
Sep	80	21.1	47.9	31.0	0.791	0.946
Jan	81	23.8	46.7	29.5	0.807	0.946
Mar	81	25.5	51.2	23.3	0.839	0.975
Jun	81	28.0	46.1	25.9	0.839	0.975
Sep	81	25.7	49.1	25.3	0.832	0.995
Jan	82	26.3	49.1	24.6	0.837	0.982
Mar	82	28.5	45.4	26.1	0.840	0.976
Jun	82	29.2	47.9	22.9	0.857	0.996
Sep	82	31.4	42.8	25.8	0.854	1.021
Jan	83	34.4	43.9	21.7	0.886	1.039

Note: Indices in reports prior to June 1982 have been recomputed to coincide with standards currently in use.

TABLE 5
INTENTION TO PURCHASE LIFE INSURANCE (within 12 months)

Month	Year	Plan to Buy (%)	Maybe Depends (%)	Don't Plan To Buy (%)	Base Year 1978 Index	Seasonal Adjusted Index
Mar	78	5.1	11.6	83.3	1.006	1.024
Jun	78	4.9	8.9	86.2	0.995	1.012
Sep	78	6.4	6.7	86.9	0.998	1.020
Jan	79	5.7	8.6	85.7	1.000	1.013
Mar	79	3.6	6.2	90.2	0.977	0.994
Jun	79	4.3	7.8	87.9	0.987	1.004
Sep	79	4.2	6.9	88.9	0.984	1.005
Jan	80	2.9	8.9	88.2	0.981	0.994
Mar	80	2.3	7.1	90.6	0.971	0.988
Jun	80	3.2	5.5	91.3	0.972	0.988
Sep	80	2.2	7.9	89.9	0.973	0.994
Jan	81	4.5	5.3	90.2	0.980	0.993
Mar	81	3.9	6.1	90.0	0.979	0.995
Jun	81	3.8	6.5	89.7	9.979	0.996
Sep	81	2.9	2.7	94.4	0.961	0.981
Jan	82	3.7	4.9	91.4	0.973	0.986
Mar	82	4.2	5.3	90.5	0.978	0.995
Jun	82	4.4	6.6	89.0	0.984	1.000
Sep	82	3.8	6.8	89.4	0.980	1.002
Jan	83	5.4	7.1	87.5	0.993	1.006

TABLE 6
INTENTION TO PURCHASE REAL ESTATE FOR INVESTMENT (within 12 months)

Month	Year	Plan to Buy (%)	Maybe Depends (%)	Don't Plan To Buy (%)	Base Year 1978 Index	Seasonal Adjusted Index
Mar	78	14.2	24.7	61.1	1.027	1.066
Jun	78	10.9	24.6	64.5	1.000	1.048
Sep	78	11.1	23.6	65.3	0.998	1.051
Jan	79	8.1	24.0	67.9	0.976	1.025
Mar	79	8.4	23.4	68.2	0.976	1.012
Jun	79	6.5	21.8	71.7	0.956	1.002
Sep	79	7.5	20.2	72.3	0.958	1.009
Jan	80	6.1	22.6	71.3	0.956	1.004
Mar	80	4.2	16.0	79.8	0.920	0.955
Jun	80	3.7	17.6	78.7	0.922	0.966
Sep	80	2.8	21.2	76.0	0.928	0.978
Jan	81	3.9	18.1	78.0	0.925	0.972
Mar	81	4.4	21.2	74.4	0.939	0.974
Jun	81	4.6	21.6	73.8	0.942	0.987
Sep	81	3.1	17.2	79.7	0.917	0.966
Jan	82	2.9	17.7	79.4	0.917	0.963
Mar	82	3.8	17.2	79.0	0.922	0.956
Jun	82	2.8	16.3	80.9	0.912	0.956
Sep	82	3.6	16.5	79.9	0.918	0.967
Jan	83	5.5	17.4	77.1	0.934	0.981

Note: Indices in reports prior to June of 1982 have been recomputed to coincide with standards currently in use.

TABLE 7
ARKANSAS ECONOMY FOR THE NEXT 5 YEARS

Month	Year	Good Times (%)	Good & Bad Times (%)	Bad Times (%)	Base Year 1978 Index	Seasonal Adjusted Index
Mar	78	34.8	57.3	7.9	1.018	1.127
Jun	78	32.7	61.5	5.8	1.019	1.124
Sep	78	30.6	61.1	8.2	0.993	1.089
Jan	79	26.8	64.6	8.5	0.971	1.076
Mar	79	19.3	67.2	13.6	0.908	1.004
Jun	79	13.1	69.0	17.9	0.861	0.950
Sep	79	15.7	72.3	12.0	0.898	0.985
Jan	80	14.4	71.9	13.7	0.885	0.981
Mar	80	5.5	75.3	19.2	0.825	0.913
Jun	80	7.6	81.5	10.8	0.868	0.957
Sep	80	11.5	81.3	7.2	0.901	0.988
Jan	81	8.2	77.9	13.8	0.858	0.951
Mar	81	10.8	79.1	10.2	0.884	0.978
Jun	81	11.0	81.0	8.0	0.895	0.987
Sep	81	8.5	79.1	12.4	0.865	0.948
Jan	82	10.0	74.1	15.8	0.857	0.950
Mar	82	10.5	77.7	11.8	0.876	0.970
Jun	82	9.9	81.1	9.0	0.886	0.977
Sep	82	12.8	76.9	10.2	0.893	0.980
Jan	83	17.8	75.8	6.3	0.935	1.037

PROTECTIONISM: NEW DIMENSIONS OF AN OLD ISSUE

Thomas R. McKinnon
Director, Bessie B. Moore Center for Economic Education
University of Arkansas, Fayetteville

The case for free trade in the world economy has been so well developed for so long that economists are usually surprised by periodic upsurges in protectionism. Since David Ricardo developed the theory of comparative advantage in the early 1800's, virtually all economists have supported free trade. The outcome is unambiguous. Because of the benefits of world-wide specialization, consumers have more and higher quality goods at cheaper prices.

Despite the widespread acceptance of the premise of free trade, economically difficult times inevitably raise the spector of protectionism. In the wake of world-wide recession and recent difficulties in competing among Japanese, Europeans, and American businesses, protectionist sentiment is growing in the United States. An administration supposedly committed to free trade has instituted policies ranging from "voluntary" agreements by other nations to limit steel and automobile imports to a 45% tariff increase on motorcycles. Further pressures to slow the pace of imports of items such as lumber and machine tools are currently being applied.

The tremendous gains in world trade that have occurred since World War II are being threatened not only in the United States but around the world by a rising tide of protectionism. The issue is old but the consequences are as important as ever.

A variety of arguments have been developed to support the imposition of trade barriers. The "infant industry" argument has been around at least since Alexander Hamilton. According to that thesis certain individual industries may not have the opportunity to develop because of competition from already established industries abroad, even though, once developed, they would have a comparative advantage. If these industries are protected from foreign competition during their infancy, then they can successfully compete when they mature. Theoretically, the argument has some validity, but in practice it is difficult to justify. When is an industry mature and will protection weaken the incentive to efficiency? Seldom is such a tariff removed. At any rate, the argument has little application in an advanced country such as the United States.

The military self-sufficiency argument is an often heard second justification for trade barriers. Certain industries are said to be indispensable to a war effort even through a nation has no comparative advantage through their production. Because war might cut off any foreign source, the nation must maintain the relatively inefficient industry during peace time by giving protection against foreign competition. Consumers of that particular good are in effect paying for national defense through the higher price resulting from protection. Perhaps it would be more equitable to tax all citizens and subsidize the industry to keep it functioning, rather than to have particular consumers pay for defense. We currently maintain the merchant marine in this way.

Another often heard argument for protectionism is to safeguard the American wage rate against cheap foreign labor. The argument implies that without protection our wage rate will fall to the level of the foreign competitor's. The justification ignores the fact that wages reflect productivity and as long as productivity is higher among American workers, wages will be higher. As other nation's workers have increased productivity, their wages have also risen, as in the case of Japanese workers. Also the wage rate within a country reflects its resource mix. As long as labor is scarce relative to capital, as it is in the U.S., wage rates will be high and capital intensive production will be our comparative advantage. Countries with large labor forces relative to capital will have lower wages and an advantage in labor intensive industries. So wage rates among nations differently situated are not really competitive.

Also affecting labor is the argument that importing foreign goods costs jobs at home. Buying foreign goods creates employment for foreign labor that otherwise would go to Americans; therefore, barriers that protect domestic jobs should not be removed. In the short-run there is truth in the argument, for example, removing barriers to the importation of shoes could cause shoe plants to close, workers to become unemployed, and towns to die. However, in the long-run employment in export industries would be expanded and labor would be reallocated from less efficient to more efficient industries. Since workers would suffer in the short-run, it would be appropriate to provide public assistance to ease the adjustment. Since the whole nation realizes gains from increased trade, some of these gains can be used to compensate those citizens who suffer losses during the period of adjustment. The bitter experience of the Hawley-Smoot tariff of the 1930's taught that a nation cannot export its unemployment because other nations will retaliate. A beggar-thy-neighbor policy merely eliminates trade and worsens unemployment in all countries.

International trade is a two-way street. It requires that nations import as well as export. Without exports other nations do not have the dollars to buy our exports and more efficient export industries suffer so that less efficient industries can be protected. The overall allocation of resources is worsened.

Currently, a new, more subtle argument for trade barriers has called traditional theory into question. It is charged that free trade theory will not work because foreign governments subsidize to give their industries a competitive position that is not consistent with comparative advantage. If other nations intervene to protect and subsidize key industries, the United States will lose out in international competition despite its comparative advantage. So in order to maintain even high-technology industries the United States must match these support policies.

Whatever the merits of the arguments for protectionism, whether new or old, in the end it must be remembered that the consumer pays. If the consumer realizes that ultimately he pays higher prices in the markets that are protected and is willing to bear the cost, then trade barriers are viable policy.

1982 SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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A REVIEW OF THE 1982 ARKANSAS ECONOMY

Phillip H. Taylor
Director, Bureau of Business and Economic Research
University of Arkansas, Fayetteville

Early estimates available for 1982 indicate that Arkansas Personal Income, when adjusted for inflation using the CPI, declined by 2.6 percent over the year. In terms of 1975 dollars, Personal Income rose only 15.7 percent from $9.2 billion to $10.6 between 1975 and 1982. Moreover, the 1982 level was below that of every year since 1977.

In terms of nominal (current) dollars, Arkansas Personal Income surpassed $19 billion n 1982. However, its annual growth of slightly under $600 million was less than one-half of that experienced in any year since 1975.

The average annual unemployment rate for the year was 9.5 percent which equalled the national rate. For comparison purposes, the annual figure was the same as that for 1975 and a full 3.3 percent above the recent low of 6.2 percent achieved in 1979. The labor force averaged almost 919 thousand during the year, for an annual growth of approximately 8.5 thousand. However, wage and salary employment in manufacturing was down by 6.5 thousand and in nonmanufacturing, down by over 10,000.

Value added by manufacture, seasonally adjusted, declined steadily from the second quarter of the year so that the annual total was $150 million below the figure for 1981. Cash receipts from farm marketings declined over the 1982 period, finishing the $110 million below the 1981 level. Reflecting the reduction in the manufacturing and agriculture sectors, Arkansas river traffic declined during the year to its lowest level since 1976.

On an annualized basis, the volume of residential construction contracts increased by $350 million between the first and fourth quarters. The level of activity in the final quarter of 1982 was the highest it has been since the initial quarter of 1979 but the year's total was only slightly better than that of 1981 and less than that achieved in 1980.

Nonresidential construction contracts for the year were lower than they have been in six of the past seven years. Considering only the fourth quarter, activity was well below that for the same quarter in any year since 1974.

Activity among savings and loan associations enjoyed a somewhat remarkable upturn in the fourth quarter. Net new savings, in constant dollars, increased 674.8 percent over the previous quarter, while total new loans rose by 190.3 percent. While some of the savings growth undoubtedly stems from shifts in funds, the new loans reflect increased activity in the housing markets.

In summary, Arkansas' economic performance in 1982 reflected the severity of the recession. In many sectors, activity in the fourth quarter began to reflect some improvement in economic conditions and early indicators generally reflect that activity in 1983 is above that for similar periods of 1982. Overall, the economic outlook for 1983 calls for slowly rising levels of employment and income, with the unemployment rate declining slightly. However, the rate of recovery will vary substantially between geographic regions as a result of variations in the structure of local economies.

EMPLOYMENT

Base Year to Date and Quarterly Changes in Total Employment, Arkansas and United States

Seasonally adjusted, percent. Base Year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-1	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1983 Q-IV
Arkansas	+ 41.7	- 1.3	- 1.7	+ 0.6	+ 2.3
United States	+ 33.3	- 0.5	+ 0.2	+ 0.0	- 0.6

Employment by Major Industry Group in Arkansas, and Unemployment Rate, Arkansas and United States

Seasonally adjusted, units

TIME PERIOD	EMPLOYMENT				UNEMPLOYMENT RATE	
	Wage and Salary		Agricultural	Total[R]	Arkansas[1]	United States[1]
	Manufacturing	Nonmanufacturing				
1975	175,500	444,500	61,000	771,200	9.5	8.5
1976	187,300	445,100	65,600	827,000	7.1	7.7
1977	208,900	483,400	62,800	876,000	6.6	7.1
1978	216,500	507,350	61,250	886,000	6.3	6.1
1979	217,750	526,700	65,800	926,000	6.2	5.8
1980	210,050	540,400	65,100	923,000	7.6	7.1
1981	212,100	536,150	64,100	936,000	9.1	7.6
1982	195,625	525,925	63,440	919,000	9.7[R]	9.5
1982, Q-I	199,550	523,820	64,600	922,470	10.6[R]	8.8
Q-II	196,450	521,650	63,525	906,620	9.0[R]	9.1
Q-III	193,700	525,750	62,650	912,100	9.1[R]	9.9
Q-IV	192,800	532,480	62,980	933,475	9.9[R]	10.3

[1] Actual Rate, Percentage.

R-Revised based on Employment Security Division, Civilian Labor Force Summary, Feb. 1983.

PERSONAL INCOME

Base Year to Date and Quarterly Changes in Personal Income, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Arkansas	+ 362.3	- 2.1^{R}	+ 2.5^{R}	+ 1.0^{R}	+ 1.9
United States	+ 315.6	+ 0.6	+ 1.7	+ 1.6^{R}	+ 1.3

Personal Income in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981	1982
Quarter								
Jan-Mar	2,070	2,508	2,837	3,118	3,698	4,002	4,474	4,638.0^{R}
Apr-Jun	2,373	2,667	2,948	3,208	3,681	3,975	4,548	4,755.3^{R}
Jul-Sep	2,391	2,626	2,984	3,315	3,805	4,160	4,704	4,803.5^{R}
Oct-Dec	2,368	2,676	3,070	3,406	3,929	4,265	4,740	4,896.0
Annual	9,202	10,477	11,839	13,047	15,113	16,402	18,466	19,092.8

R-Revised Based on BEA Computer Report, April 1983.

VALUE ADDED BY MANUFACTURE

Base Year to Date and Quarterly Changes in Manufacturing, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Arkansas	+ 273.0	+ 2.9	+ 0.3	- 0.5^R	- 2.3
United States	+ 35.3	- 3.1	- 1.8	- 0.7	- 2.1

Value Added by Manufacture in Arkansas

Seasonally adjusted, millions of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	981.0	1,099.3	1,158.2	1,326.7	1,416.1	1,435.8	1,534.0	1,500.7	1,400.4
Apr-Jun	975.4	1,103.2	1,226.4	1,377.1	1,407.8	1,328.3	1,506.7	1,505.2	1,482.2
Jul-Sep	1,009.3	1,134.7	1,234.1	1,344.0	1,369.4	1,325.2	1,523.6	1,497.0^R	1,600.7^R
Oct-Dec	1,074.1	1,103.1	1,248. 6	1,325.7	1,362.1	1,374.7	1,458.0	1,462.1	1,480.8
Annual	4,039.8	4,440.3	4,867.3	5,373.5	5,555.4	5,464.0	6,122.3	5,965.0	

R-Revised Based on Recomputation of Employment Data for 1982 Q-III.

CASH RECEIPTS FROM FARM MARKETINGS

Base Year to Date and Quarterly Changes in Cash Receipts, Arkansas and United States

Seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Arkansas	+ 233.5	+ 21.6	+ 1.6[R]	- 9.2[R]	- 3.5
United States	+ 237.6	+ 1.4	+ 1.3	- 0.8	+ 0.6

Cash Receipts from Farm Marketings in Arkansas

Seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	529,492	565,575	686,105	915,305	931,511	961,705	823,428	868,250[R]	694,473[R]
Apr-Jun	584,346	740,457	703,457	705,441	719,506	658,942	909,757	881,841[R]	648,362[R]
Jul-Sep	609,324	621,624	578,357	760,304	762,307	879,485	1,011,547	800,923[R]	628,662[R]
Oct-Dec	508,651	497,214	500,169	584,144	663,304	570,684	692,029	772,552	1,350,411
Annual	2,231,831	2,425,367	2,468,088	2,965,194	3,081,628	3,070,816	3,436,761	3,323,566	

R-Revised Based on USDA Summary received Mar 11, 1983.

ACTIVITY OF ARKANSAS SAVINGS AND LOAN ASSOCIATIONS

Base Year to Date and Quarterly Changes in Activity of Arkansas S & L Associations

Not seasonally adjusted, percent (based on CONSTANT DOLLARS), Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982-Q-IV
Total New Loans	+ 220.7	+ 26.4	+ 44.1	- 4.5	+ 190.3
Net New Savings	- 330.5	- 5.4	+ 4.1	- 9.9	+ 674.8

Economic Activity of Arkansas Savings and Loan Associations

Not seasonally adjusted, Thousands of dollars

TIME PERIOD	TOTAL NEW LOANS		NET NEW SAVINGS	
	Current $	1967 $	Current $	1967 $
1975	413,366	255,678	309,304	192,119
1976	606,400	355,280	393,300	231,050
1977	815,800	448,590	405,000	223,492
1978	729,300	373,700	416,900	213,610
1979	625,900	290,560	436,830	204,525
1980	504,700	204,275	287,600	115,580
1981	360,800	132,970	20,000	7,240
1982	677,400	233,370	353,800	121,355
1982, Q-I	102,600	36,250	36,900	13,040
Q-II	150,100	52,250	39,000	13,570
Q-III	146,100	49,900	35,800	12,225
Q-IV	278,600	94,970	242,100	82,520

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Base Year to Date and Quarterly Changes in Total and Internal Tonnages

Not seasonally adjusted, percent, Base = Ave. Qtr. 1971

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Total	+ 109.8	+ 6.1	- 25.4	+ 5.4	- 3.0
Internal	- 16.9	- 52.6	+ 84.2	+ 54.7	- 4.7

Freight Traffic
Arkansas River Commerce

Not seasonally adjusted, Thousands of short tons

TIME PERIOD	TRAFFIC TONNAGES*			
	INBOUND	OUTBOUND	INTERNAL	TOTAL
1975	1,440	870	2,465	5,204
1976	1,988	1,663	3,033	7,078
1977	2,841	2,339	3,463	9,138
1978	2,595	3,899	3,170	10,216
1979	2,026	3,456	2,932	8,926
1980	1,611	4,643	2,408	9,133
1981	1,564	5,684	1,741	9,446
1982	1,520	4,611	1,561	8,258
1982, Q-I	372	1,687	186	2,505
Q-II	390	1,002	342	1,870
Q-III	384	984	529	1,971
Q-IV	374	938	504	1,912

*Total tonnage includes "through traffic"—shipments which originate and terminate outside the Arkansas River Commerce Area.

RESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Residential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Arkansas	+ 241.5	- 23.6	+ 57.5	+ 13.1	- 3.0
United States	+ 233.9	- 12.9	+ 48.8	+ 5.5	+ 2.2

Residential Construction Contracts in Arkansas

Seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982	Not seasonally adjusted 1982
Quarter									
Jan-Mar	84,388	116,379	160,861	220,739	205,119	144,050	176,180	115,590	106,500
Apr-Jun	85,740	117,164	173,558	236,915	153,917	137,600	159,750	153,850	167,700
Jul-Sep	98,557	122,732	182,210	227,633	193,364	177,450	138,360	174,250	189,700
Oct-Dec	104,656	134,927	217,222	236,718	154,130	185,450	158,510	204,440	184,000
Annual	373,441	491,202	733,851	922,005	706,530	664,550	632,800	648,130	

NONRESIDENTIAL CONSTRUCTION CONTRACTS

Base Year to Date and Quarterly Changes in Residential Construction, Arkansas and United States

Not seasonally adjusted, percent, Base year = 1967

	1967 thru 1982 Q-IV	1981 Q-IV thru 1982 Q-I	1982 Q-I thru 1982 Q-II	1982 Q-II thru 1982 Q-III	1982 Q-III thru 1982 Q-IV
Arkansas	+ 57.1	- 21.1	+ 43.2	+ 31.6	- 21.4
United States	+ 164.9	- 12.6	+ 19.5	+ 5.0	+ 12.7

Nonresidential Construction Contracts in Arkansas

Not Seasonally adjusted, thousands of dollars

	1975	1976	1977	1978	1979	1980	1981	1982
Quarter								
Jan-Mar	79,225	43,591	57,486	72,851	88,988	72,300	90,500	96,300
Apr-Jun	67,424	93,906	63,726	60,479	109,976	91,200	72,700	54,700
Jul-Sep	45,566	67,913	67,632	90,471	70,296	91,900	59,400	72,000
Oct-Dec	89,446	79,004	76,866	69,041	112,549	99,700	79,500	56,600
Annual	281,661	284,414	265,710	22,842	381,809	355,100	302,100	279,600

LABOR FORCE ESTIMATES

February 1983, not seasonally adjusted

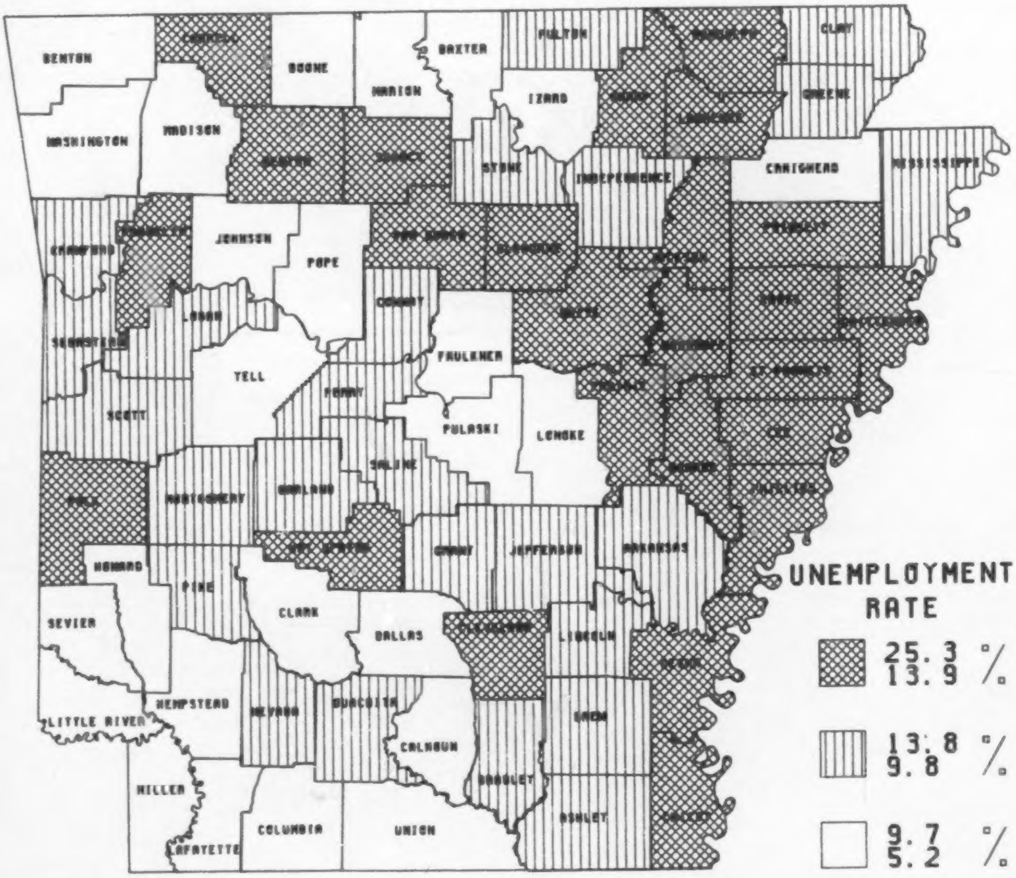
State and SMSA's	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	109,647,000	11.3	97,265,000
STATE OF ARKANSAS	1,012,100	10.7	904,300
Fayetteville-Springdale SMSA (Benton & Washington Counties)	83,150	7.5	76,900
Fort Smith SMSA (Crawford & Sebastian Counties in Arkansas and LeFlore & Sequoyah Counties in Oklahoma)	84,850	11.7	74,900
Little Rock-North Little Rock SMSA (Pulaski & Saline Counties)	196,900	7.8	181,500
Pine Bluff SMSA (Jefferson County)	37,650	11.2	33,425

County	Civilian Labor Force	Unemploy-ment Rate	Total Employ-ment	County	Civilian Labor Force	Unemploy-ment Rate	Total Employ-ment
Arkansas	11,650	10.3	10,450	Lee	5,225	23.9	3,975
Ashley	10,500	12.9	9,150	Lincoln	3,775	13.2	3,275
Baxter	10,050	8.2	9,225	Little River	5,750	8.7	5,250
Benton	36,725	8.4	33,650	Logan	7,450	13.8	6,425
Boone	13,100	6.3	12,275	Lonoke	15,850	8.0	14,575
Bradley	4,925	11.2	4,375	Madison	5,700	9.6	5,150
Calhoun	2,500	9.0	2,275	Marion	5,700	7.5	5,275
Carroll	8,150	14.1	7,000	Miller	15,575	8.5	14,250
Chicot	7,000	17.1	5,800	Mississippi	25,525	11.9	22,475
Clark	10,075	7.7	9,300	Monroe	4,800	21.4	3,775
Clay	8,850	12.7	7,725	Montgomery	3,075	11.4	2,725
Cleburne	6,250	17.2	5,175	Nevada	3,850	13.6	3,325
Cleveland	1,750	18.6	1,425	Newton	1,800	18.1	1,475
Columbia	13,775	8.2	12,650	Ouachita	12,725	10.2	11,425
Conway	8,050	11.8	7,100	Perry	2,975	10.9	2,650
Craighead	30,450	9.7	27,500	Phillips	13,075	15.1	11,100
Crawford	16,525	13.0	14,375	Pike	3,650	11.6	3,225
Crittenden	25,000	15.3	21,175	Poinsett	10,200	19.4	8,225
Cross	8,625	14.8	7,350	Polk	5,750	15.2	4,875
Dallas	4,075	8.6	3,725	Pope	19,850	8.7	18,125
Desha	7,625	14.1	6,550	Prairie	3,400	19.1	2,750
Drew	7,825	12.1	6,875	Pulaski	169,725	7.5	157,000
Faulkner	22,475	9.6	20,325	Randolph	6,950	15.8	5,850
Franklin	6,400	14.1	5,500	St. Francis	12,500	19.6	10,050
Fulton	2,625	11.4	2,325	Saline	27,175	9.8	24,500
Garland	32,300	9.8	29,125	Scott	3,175	10.2	2,850
Grant	4,625	13.0	4,025	Searcy	2,950	16.1	2,475
Greene	13,475	10.0	12,125	Sebastian	41,450	10.6	37,075
Hempstead	10,750	8.1	9,875	Sevier	5,800	9.1	5,275
Hot Spring	9,525	17.8	7,825	Sharp	4,100	15.2	3,475
Howard	7,650	5.2	7,250	Stone	3,275	13.7	2,825
Independence	16,825	10.0	15,150	Union	23,350	8.2	21,425
Izard	4,075	9.2	3,700	Van Buren	3,650	15.1	3,100
Jackson	9,025	16.3	7,550	Washington	46,425	6.8	43,250
Jefferson	37,650	11.2	33,425	White	22,475	14.9	19,125
Johnson	8,175	8.0	7,525	Woodruff	4,450	25.3	3,325
Lafayette	3,400	9.6	3,075	Yell	8,550	7.6	7,900
Lawrence	7,950	17.6	6,550				

Source: The Research and Statistics Section, Arkansas Employment Security Division, April 1983.

LABOR FORCE ESTIMATES
FEBRUARY 1983

IN FEBRUARY, ARKANSAS' CIVILIAN LABOR FORCE GREW BY 12,800 TO TOTAL 1,012,100. TOTAL EMPLOYMENT INCREASED 18,100 TO TOTAL 904,300. UNEMPLOYMENT FELL 5,300 TO TOTAL 107,800. OF THE 75 COUNTIES, HOWARD HAD THE LOWEST UNEMPLOYMENT RATE AT 5.2 PERCENT AND WOODRUFF THE HIGHEST AT 25.3 PERCENT. MOREOVER THE UNEMPLOYMENT RATES IN 42 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE SMSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 7.5 PERCENT AND FORT SMITH HAD THE HIGHEST RATE AT 11.7 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE PINE BLUFF SMSAS WERE 7.8 AND 11.2 PERCENT, RESPECTIVELY.



UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

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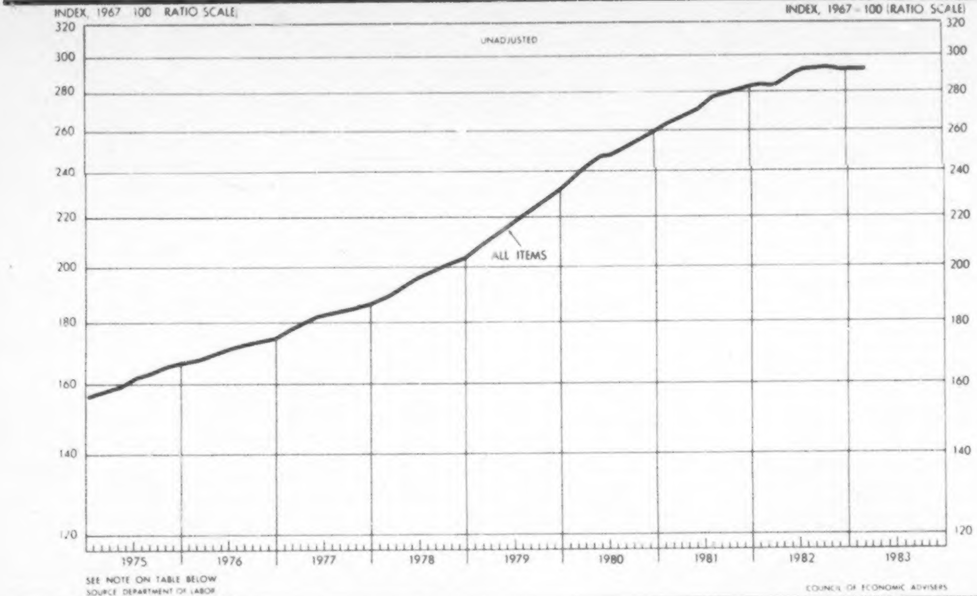
CONSUMER PRICES

In March, the consumer price index for all urban consumers rose 0.1 percent, seasonally adjusted and unadjusted. The index was 3.6 percent above its level in March 1982.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1] NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [4]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel [3]			
				Total	Renters' costs [2]	Homeowners' costs [2] NSA	Maintenance and repairs NSA								
Rel. imp. [5]	*100.0*	*19.0*	*37.7*	*21.3*	*6.9*	*13.9*	*0.5*	*8.4*	*5.2*	*21.8*	*3.5*	*6.2*	*6.0*	*12.4*	*47.3*
1975	161.2	175.4	164.5	169.7	...	...	187.6	167.8	142.3	150.6	127.6	170.8	168.6	176.6	149.4
1976	170.5	180.8	174.6	179.0	...	...	199.6	182.7	147.6	165.5	135.7	177.9	184.7	189.3	159.9
1977	181.5	192.2	186.5	191.1	...	...	214.7	202.2	154.2	177.2	142.9	188.2	202.4	207.3	169.5
1978	195.4	211.4	202.8	210.4	...	...	233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7	...	...	256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7	...	...	285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7	...	...	314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0	...	...	334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1982: Mar	283.1	282.8	306.8	327.4	...	...	327.2	340.8	190.6	286.6	195.7	385.0	318.1	405.5	241.1
Apr	284.3	283.3	309.4	331.1	...	...	331.6	341.4	190.8	282.5	196.1	362.7	321.4	395.2	242.4
May	287.1	285.4	313.6	336.4	...	...	334.5	345.5	191.1	285.1	196.5	368.0	324.2	401.8	243.4
June	290.6	287.1	316.8	340.6	...	...	336.1	348.5	191.5	291.5	197.2	387.4	327.2	412.9	245.4
July	292.2	287.6	318.4	342.5	...	...	334.7	350.3	192.2	294.1	198.0	393.4	330.5	416.7	246.7
Aug	292.8	286.9	319.7	344.0	...	...	335.9	353.1	192.7	295.3	199.2	395.9	333.4	418.9	247.7
Sept	293.3	287.5	319.3	342.3	...	...	338.4	357.5	192.8	295.6	199.6	396.0	336.3	421.0	248.7
Oct	294.1	288.1	320.5	342.6	...	...	339.4	362.7	193.3	296.4	199.2	395.4	338.7	426.6	250.1
Nov	293.6	288.2	319.9	340.7	...	...	339.0	367.1	193.2	296.0	198.7	394.2	341.8	430.2	250.7
Dec	292.4	288.1	317.4	336.0	100.2	100.0	337.8	369.6	192.7	295.8	199.3	391.2	344.4	431.3	251.9
1983: Jan	293.1	288.3	318.9	338.3	100.8	100.7	342.9	368.9	193.2	293.9	199.4	378.3	347.2	[6] 420.5	253.1
Feb	293.2	288.3	318.9	339.1	101.1	100.9	339.4	366.9	194.2	289.1	201.1	353.0	350.1	404.9	254.2
Mar	293.4	290.1	318.7	339.2	101.3	100.9	339.9	365.1	194.1	289.0	202.6	349.5	351.7	401.3	254.9

[1] Includes items not shown separately.

[2] December 1982 = 100.

[3] Includes direct pricing of diesel and gasohol beginning September 1981.

[4] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel, motor oil, coolant, etc.

[5] Relative importance, December 1982.

[6] Energy excludes motor oil, coolant, etc. beginning January 1983.

Note.—NSA indicates data are not seasonally adjusted.

Data beginning 1978 are for all urban consumers; earlier data are for urban wage earners and clerical workers.

Data beginning 1983 incorporate a rental equivalence measure for homeownership costs.

Source: Department of Labor, Bureau of Labor Statistics.

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Professor William R. Darden
Executive Director - CMRM
BA 302
University of Arkansas
Fayetteville, AR 72701

(501) 575-2607

Ted Alex
Director - ATIC
BA 454
University of Arkansas
Fayetteville, AR 72701

(501) 575-6075

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ERRATA: Volume 15, Number 4, page 44.

2nd par. 2nd col.—$175 million should read $1.75 million per Intermountain Field Operations Center correction.